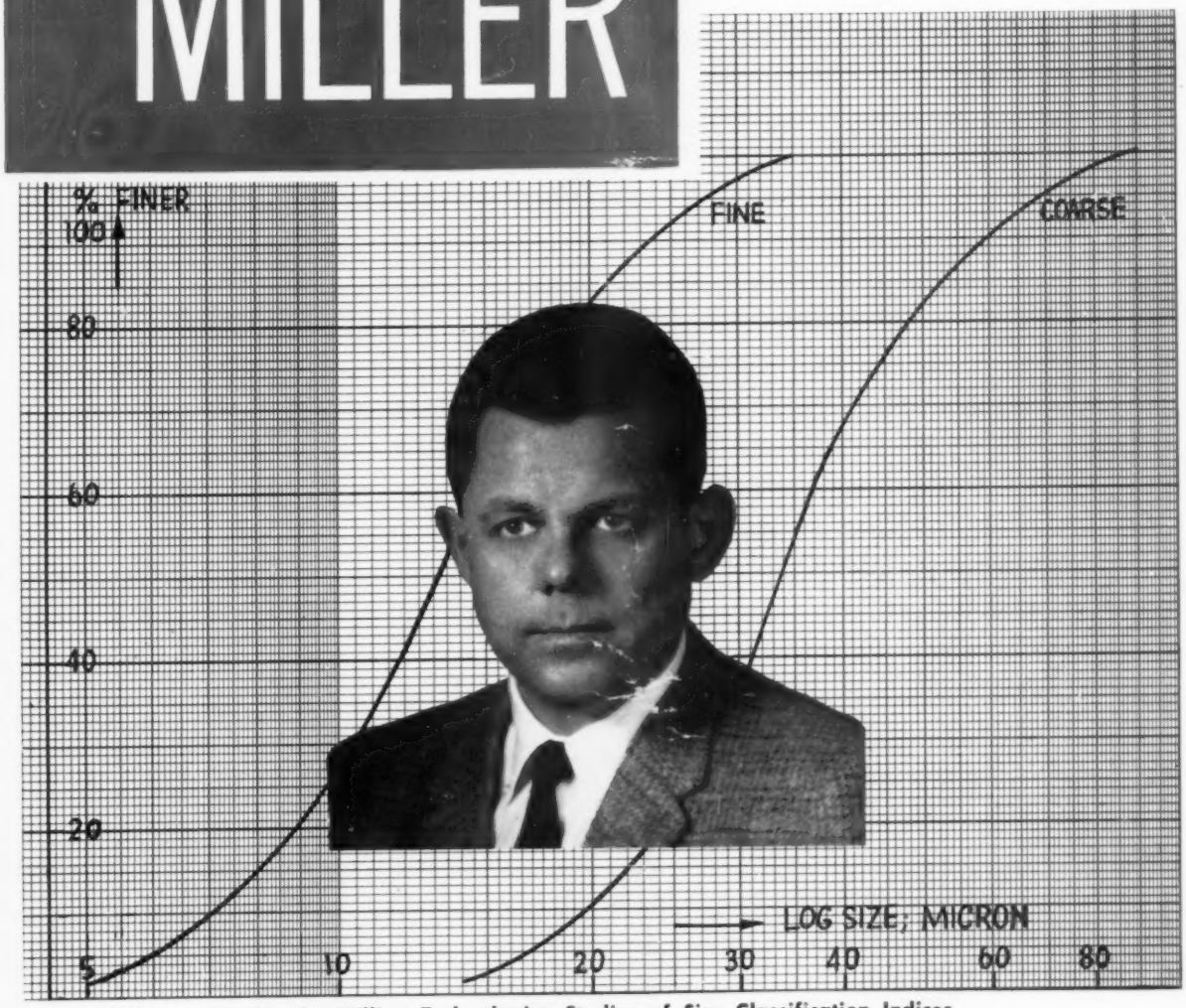
the NORTHWESTERN MILLER

THE INTERNATIONAL MAGAZINE
FOR THE GRAIN, MILLING
AND BAKING INDUSTRIES



For the Milling Technologist: Studies of Size Classification Indices

a miller publication • business journalists since 1873

Volume 265 FEBRUARY 6, 1961 Number 3

Flaky Crust

Choice wheat . . . mild gluten . . . rigid milling controls—these make Flaky Crust the choice of thousands of quality-minded pie and cookie bakers. If you don't already use Flaky Crust, now is the time to try it!

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FLOUR

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MILLING COMPANY
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"Bakery Proved" ®

CHANGING FASHIONS

Clothes are a basic human need and it used to be basic that men wore trousers and women dresses and skirts, but women, bless 'em, are also invading the trouser field . . . there seems to be no end to "being in style."

It strikes us as remarkable that with changing styles and practices in so many fields, domestic, political, industrial, so very few of the basic "stand-bys" of a century and more ago survive.

The Milling industry has seen great revolutions in operation, organization and equipment, but SWISS SILK, the bolting cloth that millers relied on in 1835, is still the standard sifting textile, not only in the milling field but wherever powdery materials are sifted or graded.

SWISS SILK HAS MET THE TEST OF SURVIVAL . . . EXCELLENCE.

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SCREW CONVEYOR CORPORATION

ENGINEERS — HAMMOND PRODUCTS — MANUFACTURERS

TRADE MARK REG. U. S. PAT. OFFICE

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~~HAMMOND, INDIANA~~

THIS LETTER FROM
SCREW CONVEYOR MID STATES CORP., INC.
1547 NORTH MOSLEY STREET
WICHITA 14, KANSAS

TELEPHONE
AMHERST 5-4271

ANNOUNCEMENT

We are pleased to announce the formation of Screw Conveyor Mid States Corporation, Inc., located at 1547 N. Mosley Street, Wichita 14, Kansas, as a wholly owned subsidiary of Screw Conveyor Corporation of Hammond, Indiana.

Screw Conveyor Mid States Corporation, Inc., has acquired the assets of Mid States Mill Equipment Company and will operate its office, plant and warehouse in Wichita.

Mr. J. Bert Hayes and Mrs. Pat A. Hull, formerly of Mid States Mill Equipment Company will be active in the management of the new subsidiary . . . Mr. J. Bert Hayes as Vice President—Plant Manager, and Mrs. Pat A. Hull in Engineering, Purchasing and Sales. Screw Conveyor Mid States Corporation, Inc., will serve a territory consisting of the States of Colorado, Kansas, Western Missouri, New Mexico, Oklahoma and Texas.

Mr. Lindsay L. Cox who formerly managed the Dallas, Texas office of Screw Conveyor Corporation has been appointed Sales Manager of the new subsidiary.

Screw Conveyor Mid States Corporation, Inc., will continue to manufacture "Mid States" Products for the Cereal Handling and Processing Industries, supplemented by the Products of Screw Conveyor Corporation. Manufacturing and warehousing facilities at Wichita will be considerably expanded in the future as conditions may demand.

Your continued good will and patronage is earnestly solicited.

SCREW CONVEYOR CORPORATION
SCREW CONVEYOR MID STATES CORPORATION, INC.

January Sixteenth
Nineteen Hundred Sixty-One

the NORTHWESTERN MILLER

Published Every Other Week for the Grain, Flour and Baking Industries

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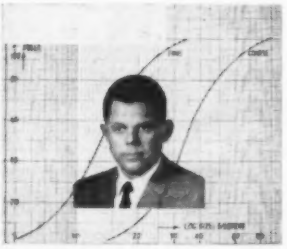

COVER PICTURE—

Rezsoe Gracza, whose picture appears on THE MILLER'S cover, has prepared Part II, "The Critical Particle Size," in his "Studies of Size Classification Indices." It begins on Page 40.

RISING PROFITS with Entoleter® Centrifugal Machines

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WITH ENTOLETER CENTRIFUGAL MACHINES!
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Write for information on infestation control for pressure systems and the new bulletin on Impact Milling for fine flour grinding.

Technologists Are Fortunate in Choice of Executive Officers

THE TECHNOLOGISTS working for the milling and baking industries—the highly trained specialists whose responsibility is to prepare the wheat, mill the flour and bake the bread—have been fortunate across the years in their choice of executive officers to run their professional organizations.

For 14 years the operative millers have had the full time services of Donald S. Eber, first as secretary, then as executive vice president. Before that, Mr. Eber had been an active worker at the local level for the Association of Operative Millers while carrying on the business of earning his living as a practical miller. He brings dedication and enthusiasm to his administrative tasks.

For 11 years the cereal chemists have had the full time services of Raymond J. Tarleton, first as managing editor, then as business manager and now as executive secretary. He, too, is a practical man in the field of chemistry having graduated in that subject—a major in chemistry as well as a minor in journalism. Mr. Tarleton brings dedication and enthusiasm to his task of administering the affairs of the American Association of Cereal Chemists.

Both these men talk the language of their members, the one as an operative miller, the other as a chemist. And to both of them the views of the "little man" are as important as those of the "big man" in the affairs of their associations.

There are other professional groups working with and for the milling and baking industries to some degree or other—accountants, scientists in many categories, and engineers. They, too, are served by dedicated, experienced, well-qualified men and the industries are fortunate to be able to command such talent.

The acknowledged Dean of all these professional administrators is Victor E. Marx, secretary-treasurer of the American Society of Bakery Engineers. And the time has come, to the regret of many, for Mr. Marx to take things easier on the grounds of health. He will retire from his post at the March meeting of ASBE and in his honor, Clayton C. Daley, society president, has dubbed the gathering the "Victor E. Marx Meeting."

Mr. Marx has been secretary-treasurer of ASBE since 1924, doing the work voluntarily for many years, even providing office space in his home, while earning his living in another capacity. It was not until 1951 that he was prevailed upon to make the post a full time one. He has seen the society grow to a membership of over 3,000 with influential affiliations abroad.

On the occasion of the 35th annual meeting in 1959, the membership appointed him an honorary past president, a unique distinction. It symbolized the affection in which Vic Marx is held among the bakery engineers. One member put it this way at the time: "He has lived, loved and worked for the society."

At the same time Mr. Marx is a man of innate modesty and he is forever referring to the men—the members—who have helped him build the society to what it is today.

Fortunately, the society will retain the consultative services of Mr. Marx for another two years—as secretary-emeritus working on a 60% basis. In that capacity he will have more time for travelling the country as the society's representative at meetings across the nation and for maintaining personal contact with members.

The corporate structure of ASBE is an efficient one with three vice presidents assisting the president and with a strong executive committee.

Undoubtedly, the strength of that structure owes much to the wise administration of Secretary-Treasurer Marx. And a wise administration insures that it has behind it a "bench" capable of taking over in the event of untoward incident. It is a poor organization which cannot function if a key man is put out of action, temporarily by accident, permanently by retirement.

ASBE took out that insurance in 1958 with the appointment of Bernard Bergholz, Jr., himself a member of the society, as assistant to Mr. Marx and as "possible successor."

Victor E. Marx

Mr. Bergholz has proved himself worthy of the succession and Mr. Daley has so suggested to the members. Bernie has shown himself to be a dedicated enthusiast and he has profited well from the guidance of his mentor, Victor E. Marx. And the name of Marx will be writ large in the annals of ASBE for many years to come. «

Importance of the AOM Technical Conference, Trade Show

ANYBODY WHO HAS HAD THE TASK of planning a meeting, no matter how small and local or how large and national, knows the difficulties involved in meeting all tastes and requirements. And the meeting planner, no matter how loudly and how often those present claim it to be the best meeting ever, knows that comparisons are odious.

The millers and allied tradesmen of Minneapolis and the hinterland stretching throughout the state of Minnesota, into Wisconsin on the one side, and into the Dakotas on the other, with Iowa to the south, are not unmindful of the fact that in 1958 they smashed all postwar records for attendance at the annual technical conference of the Association of Operative Millers. They racked up a figure of 926 registrants, with local millers dropping into the trade show for a quick look putting the actual attendance at well over the thousand mark.

They know, these millers, that their technical program was a good one; they know that the affairs organized by the various committees for the reception and comfort of the visitors, insuring opportunities for personal get-togethers, with allied tradesmen cooperating wholeheartedly, ranked among the best.

But no one is going to say that what they did was

EDITORIAL OPINION

any better than what was done in the two succeeding years in Chicago and St. Louis, or even better than what the millers and allied men did in Buffalo or Dallas, the other two main meeting centers currently on the AOM circuit, in earlier years.

What they are saying is that with all this experience behind them they are going to work hard to make Minneapolis in '61 the best ever meeting in every respect.

The association's conference will be held at the Pick-Nicollet Hotel May 22-25 and already the planners are operating in high gear. A list of the chief officials, with members of the committees already appointed, appears on page 51 of this issue. The hotel itself has been vastly improved since the 1958 meeting and the accommodations, particularly the areas devoted to the trade exhibits, are more convenient and better appointed.

Keynote of all past annual meetings—this one is the 65th of the series—is the technical program. It is this which decides the worthwhileness of the time and money invested in making the trip to the conference center. Management executives want to know what value their technologists will gain from attendance and their only answer, in making the decision to send representatives from their plants, comes from a perusal of the technical program.

Shortly, the complete program will be announced, but enough information is already available to indicate that those millers attending will gain immeasurably in knowledge and experience—experience coming from the opportunity to discuss problems and new developments at first hand with other millers and with milling engineers and suppliers of equipment.

Millers from all parts of the U.S. and from Canada have already made their reservations. Millers are coming, also, from several foreign countries, such is the high esteem in which the AOM meeting is held.

Some of the speakers are coming from overseas to address the millers, thus insuring the exchange of worldwide and worthwhile information.

The ever-popular What's New feature, with items selected by the association's technical committee, will once again be a useful and informative part of the program. Available will be information on the latest features to be designed for the sake of better and more efficient milling techniques. Sure, it may be argued that the stay-at-home miller may receive his information in the ubiquitous pamphlet and someday a salesman will call. But the miller who stays within the periphery of his own plant does not have the advantage of the opinions of his fellow millers on a new item or development. That is what the AOM meeting is able to provide.

There will be a panel discussion on milling with some top names airing their opinions—men who are highly respected in their spheres of operational milling and milling engineering. Mill operating efficiency will receive considerable attention, the program planners reveal, and there is promise of a mill maintenance panel. Every member with a question or even a contrary opinion to that held by the experts will be enabled to speak from the floor if he so desires.

Sanitation, as usual, will receive a large share of attention on the program for here is an area where greater efficiency can achieve greater cost saving.

An important ingredient in the diverse picture which makes these annual conferences so successful and so valuable is the trade show. Already nearly 80 booths have been earmarked, some of the larger exhibitors taking two, three and even four spaces. One firm, appreciating the importance of the affair, has booked no less than 10 booths to show its wares.

But there is still room for more—provided early application is made. And the time to make the decision to attend is now for the operative miller who knows he is going will take more time and make more effort to learn what he should look for once he gets to Minneapolis. And the appointed officials stand ready to aid their fellow-members in making the most out of a visit to the 65th annual technical conference and trade show, for the association's motto is "Proficiency, Fellowship and Cooperation."

With those three factors foremost in their minds they appear to have no doubt they will once again smash the post war attendance record. «

Some Assumptions on New Farm Programs

ORVILLE L. FREEMAN IS SLOSHING a Paul Bunyan-sized mop through the halls of the U.S. Department of Agriculture. Replacements include some economic idealists and theorists full of laudable objectives to "do" something for the farmer. Fortunately, other appointments have gone to men noted for their caution and they may restrain what one observer calls the "cocky roosters" from ivied academic halls of learning.

Some assumptions can be made already. One is that, like other cabinet members, Sec. Freeman is not necessarily master in his own house. President Kennedy intends to ride herd on his top aides, the agricultural secretaryship being not the least of the tight reins he is holding. His call last week for a meeting with Mr. Freeman and the heads of the four "task forces," and his active participation in the discussions, is indicative of this.

Another assumption stems from the make-up of the task forces themselves. The regular farm organizations appear to have been by-passed when the members were chosen.

The apparent prevailing philosophy of the new administration for tighter acreage restrictions to reduce supplies of the major crops meets with little enthusiasm among the old line experienced working staff at USDA. They say that anyone who has handled acreage controls has long since abandoned any faith in them as an answer to farm problems. The better land only is used; more fertilizers are applied and, in consequence, production per acre increases.

This thinking has been proved over and over again. Under the Agricultural Adjustment Act of the 'thirties there was provision for production control under acreage allotments and from that act stemmed the ill-famed "processing tax" aimed at increasing the price of the loaf of bread. Its progenitors were bright young men similar to those surrounding Sec. Freeman today. Those controls didn't work then and they are unlikely to work now.

Theoretically, production can be controlled by means of the acreage sown; in practice it does not work. «

For the story of production controls and how they failed to work effectively, please see F. C. Bisson's article on page 11 of this issue.

INDUSTRY RECORD . . .
An account of Trade Affairs and Events

United States:

The new Bellera "Air Spun" flour mill of General Mills, Inc., Buffalo, has completed its initial week of production. First operations were on a three-shift basis. Mill has a capacity of 14,000 cwt. daily, requires about 28% less cubic feet of space than conventional mill with same capacity.

●

Reduced Insurance For Pneumatic Mills?

The industry's campaign for reduced insurance rates for pneumatic flour mills took a step forward at a meeting between trade experts and the National Fire Protection Assn.'s committee on dust explosion hazards in New York Jan. 24. The meeting was described as a "get acquainted with the problem" session and a report is in preparation. In attendance for the millers were **John J. Sherlock**, Millers National Federation; **Fred Abbott**, General Mills, Inc.; **D. L. Hall**, the Pillsbury Co.; **F. J. Jun**, Quaker Oats Co., and **Eugene J. Gehrig**, Quaker (retired).

●

Milling Plants Being Acquired

Former Maritime Milling Co. plant at Buffalo being sold, with plans to build industrial center on the site. Largest part of plant, consisting of main mill and number of other buildings, being acquired by salvage firm, with ultimate plans for remodeling into an industrial development. Plant was closed year ago, after Marine Trust Co. terminated financing of Maritime Milling, subsequently sold to Ohio feed firm, Yieldmor Feeds.

●

Grain Division Opened in Portland

Opening of grain division in Portland, Ore., announced by **F. H. Corrigan**, vice president of terminal merchandising for F. H. Peavey & Co., Minneapolis. **Gerald E. Tucker**, formerly with Balfour Guthrie & Co., Ltd., Portland, named manager of new office. Operation is just one of several expansion activities of Peavey. Plans are for Portland office to support Peavey's export operations, assist in sales of Occident Elevator Division in Montana, and do general merchandising of grain in Pacific Northwest.

●

GMI to Honor Veteran Executive

E. O. Boyer, executive vice president, General Mills, Inc., Minneapolis, will be honored for 50 years of service with GMI and its predecessor, Sperry Flour Co. Company officers are planning a recognition observance, and the Modern Mill Wheel, employee publication, will publish a special feature in its February issue on Mr. Boyer's business philosophy.

●

Garvey Elevators In Export Field

Commenting on the move of Garvey Elevators, Inc., into the export field, **James S. Garvey**, president, had this to say: "Our entry . . . is based upon our firm conviction that U.S. exporters must increase export sales of U.S. grown grain to improve the health and climate of U.S. agriculture. We are eager to participate in the expansion of American sales abroad." Presaging this expansion of operations was the appointment of **Thomas Dransfield**, formerly with Osborne McMillan Elevator Co. and Cargill, Inc., to develop the Garvey export department. (THE MILLER, Jan. 23, page 68.)

●

Ralston Purina's Financial Report

Ralston Purina Co., in fiscal report for three months ended Dec. 31, reports net sales of $127,088,454 against $127,638,748 for comparable period of 1959. Net earnings, after taxes, were $4,662,508 compared with $4,495,136. Earnings for first quarter of fiscal year amounted to 71¢ a share against 69¢ a share for

"There was a trade analyzin' drummer along here from THE MILLER the other day, name of James Sylvester Bardeen," said Old Dad Fetchit of the Fish River Roller Mills, "an' he asked how was business an' I up and said to him: 'Business ain't, but someway or other I don't seem to give a dang. I sold a considerable sight of flour along in the fall an' run the water above the dam pretty low, an' I got mighty little wheat on hand, but they's plenty back in the hills an' in the guv'ment bins; so I'm jes' settin' here waitin' for folks to catch up on bread eatin' an' not worryin' much about anythin' except maybe the apples last year was kind of runty an' mealy an' the parsnips ain't been teched enough with frost to make 'em right sweet an' nice.' But he were a reg'lar feller though nervous like when a wood kitty come rarin' out of the timber. After settin' for a spell an' some corn licker he took off to see Peg-Leg Green who runs the one-gallus wheat butchery over at Lightnin' Struck."

same period of previous year. Directors have voted for regular quarterly dividend of 35¢ a share to be paid March 13 to stockholders of record at close of business Feb. 20, an increase of 5¢ a share.

●

Wheat Exhibit Planned For Cairo Food Fair

Member of Kansas Wheat Commission, **Lloyd M. Barkis**, will take Great Plains wheat exhibit to World's Food Fair in Cairo, Egypt, this year, in cooperation with U.S. Department of Commerce.

●

Clupak Issues License To German Firm

License to build Clupak extensible paper machinery issued to J. M. Voith G.m.b.H., paper machinery construction firm at Heidenheim, Germany, says **G. E. Amerman**, president of Clupak. Firm of J. M. Voith has been in business over 150 years. Clupak now licenses in U.K., Europe, Japan, in addition to U.S.

●

F. V. Deaderick, Bemis Bro., Retires

Retirement of **F. V. Deaderick**, vice president, director of personnel for Bemis Bro. Bag Co., as of Jan. 30 brings to close career dating from 1918. Mr. Deaderick started in credit department at St. Louis, served as salesman, correspondent, St. Louis office manager, later moved to Houston as plant and sales division manager. He served there through 1950, became director of eastern operations in 1951, headquartering in New York City. In 1952 he was elected a vice president, and in 1953 a company director. Returned to St. Louis general offices in 1957 as director of personnel. Successor is **E. F. Muehlhausen** (THE MILLER, Jan. 23, page 24.)

F. V. Deaderick

●

Flour Mills of America Makes Fiscal Report

Reopening of Alva, Okla., mill of Flour Mills of America, Inc., forecast in semi-annual report of **J. M. Ferguson, Jr.**, president. Company reopened its North Kansas City flour mill in November, and report shows facility now operating at rated capacity of 14,500 cwt. a day, earning a good profit milling for export under large government and private contracts, says Mr. Ferguson. FMA also expanding New Braunfels mill with addition of 1,400 cwt. corn mill. Net earnings of FMA for period ended Nov. 30 were $379,102, or 61¢ a common share against $390,031, or 63¢ a common share in comparable period of 1959. Net sales for six months' period were $11,592,188 compared with $8,539,318 previous year. Result was consolidated operating profit of $1,825,158 against $1,733,934. Mr. Ferguson told stockholders earnings for six months compared favorably with 1959 in view of 20¢ cut in grain storage rates, increased labor costs and start-up costs of reopening Kansas City plant. He commented: "Your officers and directors are continuing to expand FMA whenever it appears that new ventures will provide an equitable return on capital investment . . . industry as a whole still subject to adjustments, but it is our feeling that present operations are on a sound basis for foreseeable future, and we are in an excellent position to make immediate adjustments if needed and still continue on a profitable basis."

●

Wheat Export Record Forecast

Record total of wheat exports during current fiscal year forecast by **Clifford R. Hope**, president, Great Plains Wheat, Inc. Past six months' total (July 1-Dec. 31) expected to reach 300 million bushels, although final figures not yet released, says Mr. Hope. Prospects just as bright for next six months, he believes. Present levels, if maintained, should result in exports of 600 million bushels for fiscal year, breaking all records. Previous record was 553 million bushels in 1956-57 fiscal year.

●

Systems Engineering Reports Expansion

Completion of new facilities to permit almost double its volume of production for bulk pneumatic handling inndustries reported by **Floyd A. Cailloux**, president of Systems Engineering & Manufacturing Co. (SEMCO), Houston, Texas. Expansion includes additional office and manufacturing facilities.

●

International's Director Of Research Resigns

Dr. Herman H. Schopmeyer, director of research, International Milling Co., resigns effective March 1. No successor named to date, company states. Dr. Schopmeyer headed International's research since 1947, says he plans to devote his time to managing two farms which he owns in Indiana, also to do some consulting work on part-time basis.

●

Buhler Mills Moves Regional Office

Buhler Mills, Inc., announces that its southern regional office has been moved to 2695 Broad Ave., Memphis, Tenn.

●

Dixie Lily Milling Plans Expansion

Dixie Lily Milling Co., Tifton, Ga., undertaking expansion of facilities, says **J. H. McIntosh, Jr.**, plant manager. Plans call for construction of 10 elevators with 8,000 bu. capacity each, remodeling of old machinery, some new machinery. **Cecil M. Webb** heads Dixie Lily as president. Firm mills its own brands of plain and self-rising corn meal.

●

Quality Report Issued On 1960 Wheat Crop

Great Plains Wheat, Inc., issuing to buyers, processors, government officials at home and abroad a quality report on 1960 wheat crop in Great Plains area. A new service, the report was developed in cooperation with **James Doty**, Doty Laboratories, Kansas City. Report covers 25 production zones in 10 states, giving amount of wheat produced, range and average of protein percentage and test weight, Farinograph curve reading.

●

Canada:

Successor to the late C. D. Howe of Ogilvie Flour Mills Co., Ltd., has been named. He is **J. Arthur Mathewson**, now appointed as Ogilvie's chairman of the board.

●

Value of Factory Shipments Increases

Value of factory shipments from Canada's biscuit industry in 1959 increased 2.6% to a record $82,683,000 from previous high of $80,612,000 in 1958, according to annual industry report by Dominion Bureau of Statistics. The industry had fewer employees (5,897 compared with 5,914 in 1958), paid more in salaries and wages ($16,917,000 compared with $15,986,000), and for materials and supplies ($39,164,000 compared with $38,011,000). Shipments of plain and fancy biscuits were valued at $63,390,000 in 1959 and $62,824,000 in 1958. «

Just One More Cent on the Price of Bread Was the Catchpenny Phrase to Aid Farmers

Processing Tax Was Part of an Economic Elixer Compounded By a Group of Well Meaning but Highly Impractical People

By F. C. Bisson
Chicago Correspondent

BACK AROUND THE TURN of the century, whenever a death occurred in the little Minnesota community where the writer was born, the editor of the weekly village paper had a standard lead paragraph for the obituary which he would dust off to cover the situation. The sole variation, and that from sheer necessity only, consisted of substituting a new name for the old.

You probably will not believe it, but they all read like this: "Today it becomes our sad duty to chronicle the death of Amos Squatwell who passed away after a lingering illness. All that kind and loving hands and skilled medical attention could do, proved to be of no avail. Early Sunday morning the Grim Reaper, no respecter of either age or youth, summoned Amos to join the Silent Majority. The family has the sincere sympathy of the entire community."

Just such an obituary could have well been written about the demise of the Federal Farm Board in 1933 . . . that is, all but the final sentence because in this case never before was there a wake and subsequent interment that was such a gala affair. True, there were a few mourners, mainly government employees who were being separated from the payroll and they might have shed a vagrant tear or two. But for the most part, figuratively speaking at least, all of the "friends of the farmer" instead of bemoaning the farm board's passing, hied themselves to the nearest haven of refreshment to drink a toast to the newly-born Agricultural Adjustment Act.

F. C. Bisson

The latter, jointly fathered by a well known industrialist and a retired army officer, was brought into the world under the willing but unskilled hands of a corps of young economic obstetricians tutored by the new secretary of agriculture, Henry Wallace, Jr.

AAA was hailed at the time as the salvation not only of the agrarian segment of the economy, but as the catalyst that would set off an era of unprecedented prosperity for the country as a whole.

As might have been anticipated under the circumstances, it had all of the gadgets, gim-cracks and other appendages that would be expected in the brainchild of a group of well meaning but highly impractical people.

Just to name a few, there were provisions for production control through acreage allotments, marketing quotas with heavy penalties for violation and nonrecourse loans, all to be financed through the medium of what they called "processing taxes." These taxes were to be of the "painless" type, but just like the "painless dentistry" of the early nineteen hundreds the reputed absence of pain was a 100% figment of the imagination.

The whole thing was a brand new economic concept, new at least to a country which up to then had no stomach for anything that savored of planned scarcity. This economic elixer not only was widely advertised as being the legislative shot-in-the-arm that agriculture needed, but was claimed also to be able to re-instill pep to the jaded economy in somewhat the same manner that some misguided surgeons of an earlier day had attempted to rejuvenate the older generation by the transplanting of monkey glands.

The idea was "sold" to the man in the street through the aid of some sugar coating that helped to get it down easier by asking everyone "if they would not be willing to pay 'just one cent more' for a loaf of bread, if by so doing prosperity would be insured for the butcher, the baker and the candlestick maker" . . . and incidentally by the process of osmosis, "to yourself, too."

The processing tax on wheat was set at 30¢ bu. The processors had to collect it from bakers, jobbers and others who bought flour from them, and they in turn passed the tax on

What is done in Washington in the next few months in the field of farm legislation will affect the livelihood of every mill executive, every operative miller, every cereal chemist, and every allied tradesman who supplies their needs. As the new agricultural administration, headed by Orville L. Freeman, and staffed by a team of economists, theorists and other experts, moves into high gear, understanding of what is done can only come from a knowledge of what has gone on before. The new government is pledged to "do" something for the farmer. What was "done" in the past is explained by veteran observer F. C. Bisson—and his findings do not bespeak success.

'Slicing the Melon' (continued)

to the ultimate consumer. The baker had no other alternative but to raise the price of his bread and pastries. Yet the farmer, who brought his wheat direct to the country miller, and traded it for flour, paid no tax. In effect, this was a legalized black market in reverse.

As old time millers will remember, there were many inequalities in the manner the scheme worked out. For instance, if the miller was compelled to use lightweight wheat, the incidental tax on flour made from it amounted to more than if 60 lb. test weight wheat was available, thereby putting him at a financial disadvantage which could not be offset no matter how he tried.

Out of each 30¢ a bushel collected from millers, the government retained 2¢ for administrative purposes. The remaining 28¢ was used in the form of "parity" payments. These were supposed to bridge some or all of the gap between the open market and the highly revered parity price.

Distribution of a substantial portion of the result of this annual melon slicing operation was made in the fall of the year with the government agency claiming that it could not distribute the largesse any earlier. And it met head on the accusations of the more vocal of the opponents of the scheme who pointed out that distribution seemed to be always "just before election."

But irrespective of the degree to which there was political motivation in the timing of the hand-outs, the entire matter of the legality of the assessment of processing taxes came before the courts and in 1936 the U.S. Supreme Court handed the taxes a chloral-hydrate cocktail . . . and put a summary end to their collection.

However, with the passage of the Soil Conservation and Domestic Allotment Act shortly after the administration of the knockout drops, and coupled with the Agricultural Adjustment Act of 1937, the government was back in the commodity business once again . . . apparently none the worse for wear. As a matter of fact, it came back much stronger than before and what it was able to do—and did do—under the new legislation made what had been going on before look like a retail operation.

Partially due to World War II but more substantially on account of inflationary procedures, parity prices for grains skyrocketed and with government wheat loan rates tied to 90% of those overstuffed parity levels, support prices moved up and up and by 1954, the farm loan level for wheat hit a high mark of $2.24 bu. and for corn $1.62. The real extent of these advances can best be realized when matching those figures with the 60¢ bu. the Commodity Credit Corp. loaned on wheat under its first support program for that grain in 1938 . . . and the 25¢ bu. loaned on corn in 1934 when the government first opened its pawnshop to make loans on that cereal.

It should be mentioned here that the use of the term "pawnshop" in this connection is a little misleading. Although the profession of moneylending is the second oldest in the world, no one doing business with three gold balls over his door ever loans more than the collateral is worth. Only an agency with the U.S. Treasury behind it ignores the cardinal principle of the profession.

Not wishing to clutter up this story with too much in the way of statistics, mention will be made here only of how the support program outdid the famous Topsy of Uncle Tom's Cabin fame between the 1947 and 1958 crops of wheat and corn. In that period of 11 years, wheat under federal support went up from 31.2 million bushels to 609.4 million while corn went from only 1,135,000 bu. to 381 million.

Sensational as these loan totals are, of even greater significance are the amounts of defaulted collateral still lodged in the government's accumulation. As of the latest available data on Nov. 30, 1960, there were still 1,145,776,556 bu. wheat and 1,472,038,597 bu. corn to be disposed of from crops grown prior to 1960 . . . and all of this with no allowance at all made for the astronomical amounts of both grains which have been gotten rid of in one way or another.

These figures are submitted as something other than just mute evidence of the complete failure of the original intent of Congress and per-

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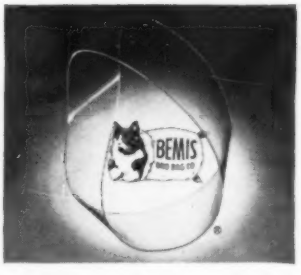

where packaging ideas are born

The 'Cripple A'? (continued)

petuated and enlarged upon in the intervening 27 years.

Theoretically, production of wheat or any other grain can be controlled by means of the acreage sown. That was one of the bills-of-goods sold to Congress years ago and although its 100% fallacy has been proved time after time, it is still being adhered to as a completely infallible axiom.

Just one illustration proves the falsity . . . the one involving Kansas wheat crops in three successive years in the early 'thirties. In 1931, from approximately 12,250,000 acres, the Kansans grew 250 million bushels of wheat in round figures. In 1932, they reduced their acreage about 14% and produced a crop of only 105 million bushels . . . a bushelage reduction of 60% from an acreage cut of 14%. Then, in 1933, they increased the area sown to wheat over 1932 but still kept it 6% under that from which they produced a quarter of a billion bushels two years before. Yet, in 1933, they grew less than 60 million bushels! In other words, between 1931 and 1933, from a 6% acreage reduction, they had a bushelage cut of better than 75%—which should put the quietus on any impractical idea that production can be controlled by juggling acreage.

Another Phobia

Marketing quotas have been still another phobia of those who hope to legislate agricultural prosperity. When the original law was passed in 1933, a marketing quota was supposed to mean just what it said . . . if a farmer grew 1,000 bu. and the U.S. Department of Agriculture determined that no more than 80% of the wheat crop of the country should be marketed and the rest held back by the grower, the farmer could only sell 800 bu.

But within a few years, and well before growers had occasion to declare their wishes as to whether or not they wanted a marketing quota imposed, Congress did a fast "U" turn and changed the law to read so that any farmer who keeps the acreage allotment assigned to him, can market every peck of grain that he grows on that acreage.

In other words, practically 100% of any effectiveness that a marketing quota might have exercised was tossed out the window. Farmers did a more intensive job of farming and by spending some of the "support" money they received from the government for being cooperators on fertilizer, they simply stepped up their per acre yields so as to offset any disadvantage accruing to them from cutting their individual acreages sown to wheat.

If there are any doubting Thomases on this point, let me refer you to the record, as the incomparable Al Smith used to say. During the past seven years, there has not been one when the winter wheat yield per acre has been less than 20.5 bu. and it went from there up to as much as 28.5 bu. For the seven years prior to the ones just mentioned, the winter yheat yield was from a low of 11.6 to a high of 18.8 bu. There is certainly nothing illegal about using lots of fertilizer.

All of this is somewhat reminiscent of the early days of AAA, an alphabetical designation referred to by its friends as the "Triple A"—and by those not so chummy as the "Cripple A."

In 1934 and again in 1936, the U.S. was subjected to terrific drouths with large scale decimation of crops. Many farmers did not have enough forage for their livestock and, to assist them in a small way, USDA sent out two-man teams into the badly stricken areas with high powered rifles to kill any animals the farmer desired, the owner being given a small financial reimbursement. As most of these animals would have starved to death anyway, very few farmers turned down the opportunity to salvage a little something out of the disaster.

It seems that at least some of these livestock executioners were politically recruited in those days. Quite often many of them had never even seen a whole cow or a sheep on account of never having been away from the Bowery. To clarify matters, according to the story, the agriculture department got out a handbook for their guidance with a picture of each kind of farm animal and several lines of descriptive reading matter.

Two of these boys with guns from the wilds of Staten Island were out in the Sierras and came across a herd of wild mountain goats. They scanned the illustrations . . . read the descriptions of each, but none fitted and they were completely puzzled. To make sure what they were doing, they wired Washington: "Found herd of animals with long beards and bare rear ends. What should we do?"

The answer came right back: "For heaven's sake, don't shoot them. They're farmers." «

MNF Nominating Committees Named

Ellis D. English, Archer-Daniels-Midland Co., president of the Millers National Federation, has appointed five district nominating committees, all responsible for nominating candidates for the federation's board of directors.

The committees, required to report their nominations by Feb. 20, are:

District I: Walter M. Mennel, Mennel Milling Co., chairman; Richard Krafft, Jr., Star of the West Milling Co., and B. H. Staplin, Cooperative G.L.F. Exchange, Inc.

District II: W. F. Toeves, J. Allen Smith & Co., chairman; S. T. Chase, Lexington Roller Mills, Inc., and B. A. Fretwell, Spartan Grain & Mill Co.

District III: A. J. Sowden, New Era Milling Co., chairman; L. L. Lundgaard, Ismert-Hincke Milling Co., and E. A. Wall, Wall-Rogalsky Milling Co.

District IV: S. N. Loew, Jr., Capitol Milling Co., chairman; J. K. Beeson, Sheridan Flouring Mills, and Frank Rawlinson, Centennial Mills.

District V: Malcolm McDonald, International Milling Co., chairman; Paul B. Miner, Bay State Milling Co., and Fred M. Atkinson, Atkinson Milling Co.

The only board member whose term does not expire at convention time in April is D. H. Wilson, Eckhart Milling Co. The federation bylaws provide that retiring presidents remain on the board automatically for two years after their presidential terms are concluded. «

• • •

Ellis English Nominated To Run for Reelection

Ellis D. English, Archer-Daniels-Midland Co., Minneapolis, has been nominated unanimously to run for reelection as president of the Millers National Federation for a second, one-year term beginning at MNF's annual meeting in April.

The nominating committee which made the recommendation consisted of Ben J. Greer, the Pillsbury Co., chairman, and members M. A. Briggs, Austin-Heaton Co.; Howard S. Holmes, Chelsea Milling Co.; Burton Roberts, Sperry Operations of General Mills, Inc., and John J. Vanier, Western Star Mill Co.

Election of the president and members of the MNF board of directors is conducted at the same time and on the same ballot. «

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LETTERS to The EDITOR

FROM: J. SCHUDDEBOOM
Sales Manager
Eastern Canada Flour Mills, Ltd.
310 Victoria Avenue
Montreal 6, Canada

Although I have been removed from the Netherlands milling scene and flour import trade for quite a number of years now, I cannot quite agree with Hans de Koster's letter in your issue of Jan. 9.

The import of (American) flour in the Netherlands was restricted to 75,000 tons. This, I believe, represented only 9% of the total consumption of flour in that country. Knowing the Dutch flour importers as I do, they would certainly sell hard winter wheat flour at the highest price possible, because cutting the price, which they certainly could do if they wanted to, would not give them any more business.

The alleged price competition of USA flour therefore existed more in the imagination of the Dutch flour millers than in reality, and therefore the restrictive import duty on flour plays in the hands of the Dutch millers, rather than making the best possible effort for the benefit of the population of that country.

Inasmuch as export of Canadian flour to Holland is and has been totally impossible on account of price, I have no axe to grind, however I do not like to see my American colleagues being treated unfairly even if they are my competitors in other markets.

●

FROM: STEPHEN M. KIMPTON
W. S. Kimpton & Sons
Flour Millers
395 Collins Street
Melbourne C.1, Australia

I was very sorry to see in THE Northwestern MILLER that Dr. William F. Geddes had died in Mexico City on Jan. 7.

I had known him for a number of years and always enjoyed seeing him on visits to Minneapolis.

The research manager of this firm, W. L. Jones, also studied under Dr. Geddes at the University of Minnesota and had a high regard and affection for him.

I am writing you as I do not know whom to write at the university, but would be grateful if you could pass on our expressions of sympathy and regret at his passing.

He was a very distinguished figure in cereal chemistry and will be greatly missed by a number of people all over the world. «

Obituaries

C. S. SAMUELSON, 57, director of advertising media and budgets for General Mills, Inc., at a hospital in Shakopee, Minn. He had been hospitalized with a heart ailment since mid-January. A lifelong resident of the Minneapolis area, Mr. Samuelson has been associated with General Mills' advertising 31 years, and was a resident of Hopkins, Minn. Survivors include his wife and two daughters.

WILLIAM HARRIS KELLEY, 63, president, Holsum Baking Co., Gastonia, N.C., at his home following a lengthy illness. Mr. Kelley was a trustee on the board of the Bakers University Fund, Inc. He served several terms on the board of trustees, baking science and management department of Florida State University; was a past governor of the Southern Bakers Assn.; past president of the North Carolina Bakers Council, and of the Bakers Association of the Carolinas. Survivors include his wife, his mother, one son and a daughter, a sister and five grandchildren.

WALTER L. STEWART, 60, manager of the engineering research laboratory, Continental Baking Co., at Fort Lee, N.J., of a heart attack. He had been with Continental 35 years. A native of Texas, he had been plant engineer of Continental bakeries in Dallas, Kansas City and Hoboken before taking over direction of the Fort Lee laboratory when it was built in 1949. Survivors are his wife and two sons.

P. J. MONTGOMERY, president, Ross Machine & Mill Supply, Oklahoma City, Okla., died Jan. 31. «

Pillsbury to Halt Flour Milling at Louisville Plant

The Pillsbury Co. has announced that it will discontinue flour milling at its Louisville plant about May 1.

The company will continue to operate its grocery products plant at the East Broadway location, Louisville, as well as its grain storage facilities and bulk flour packaging.

Approximately 80 employees will be laid off as a result of the move, according to John C. Cumming, plant manager.

Total employment at the East Broadway plant and at the company's nearby refrigerated products plant in New Albany, Ind., averages about 912 people, Mr. Cumming said. Under seniority provisions of the company's labor contract, the reductions will be made among employees with lowest seniority at each plant.

Of those laid off by the move, nearly all will have had less than four years of service with the company and most less than one year. Every effort will be made to help them relocate, he added.

Mr. Cumming pointed out that the present mill was built in 1884 in a building which was about 30 years old at that time. Pillsbury acquired the property in 1951 when it purchased the local Ballard Co.

Although the mill was obsolete and inefficient at the time Pillsbury acquired it, the company has been frustrated in its plan to build a new mill on the site by a Federal Trade Commission suit challenging its acquisition of the property.

"It has become increasingly difficult through the years to operate the mill in a satisfactory manner," Mr. Cumming said. "We have reached a point where the continued operation of this antiquated facility is economically impractical."

The company recently announced its intention of appealing an FTC order to divest itself of the East Broadway property. The possibility that Pillsbury might be forced to close the mill, because of its antiquated condition, prior to a final decision in the case was announced by Paul S. Gerot, president, at a luncheon for Louisville business leaders in November, 1959. «

CHANGE OF ADDRESS

The American Federation of Grain Millers, Local No. 1, now has a new address. It is 501½ E. Hennepin Ave. (Room 4), Minneapolis 14, Minn. «

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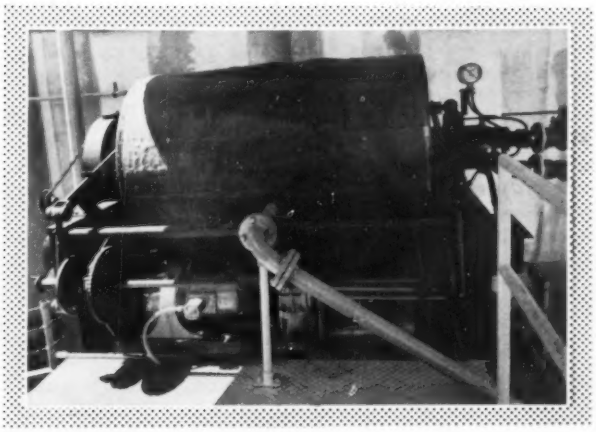

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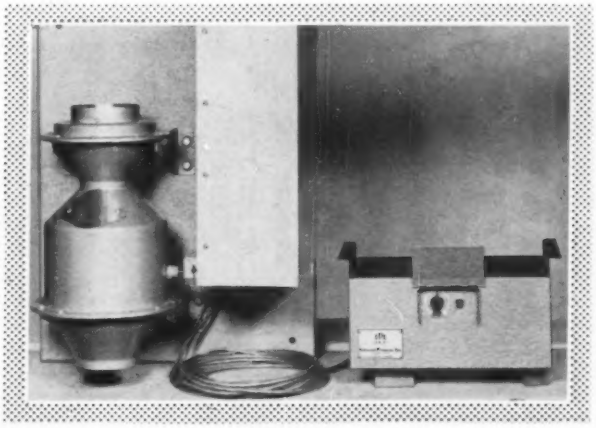

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AACC Directors Cover Broad Agenda Of Subjects During Mid-Year Session

The board of directors, American Association of Cereal Chemists, has held its mid-year meeting, sweeping its agenda clean of several highly vital matters. Convening in Minneapolis, AACC directors stamped approval on their 1960 financial statement, okayed a budget for 1961, recommended some changes in by-laws and moved ahead to publish another edition of Cereal Laboratory Methods.

Also, a recommendation from the board to the membership was made for several changes in the by-laws, which will be voted on by the membership at Dallas.

Most important changes proposed include two new membership classifications: (1) An associate membership and (2) a life membership.

Other board action included the unanimous proposal to the membership for electing six honorary members: M. J. Blish (retired); R. C. Sherwood, director of research for Sterwin Chemicals, Inc.; Ralph K. Larmour, director of research, Maple Leaf Milling Co., Ltd., Toronto; C. N. Frey (retired); D. W. Kent-Jones, Kent-Jones & A. J. Amos, The Laboratories, London, and Ralph W. Mitchell (retired).

Definite plans have been made, it was reported, for publication of the 7th edition of Cereal Laboratory Methods early in 1962, to be loose-leaf in format for the first time in AACC history. It will be supplemented periodically.

Service Award

In final action, the board approved a service award to be given annually to an AACC member who has contributed in an outstanding manner to the association. This will be known as the William F. Geddes Award, in honor of the late William F. Geddes, head of the department of agricultural biochemistry, University of Minnesota, and editor-in-chief of Cereal Chemistry for 18 years. «

THIS PNEUMATIC MILL will be constructed by Buhler Bros., Uzwil, for Molino & Pastifici Paolo Agnesi & Figli S.p.A., Imperia-Oneglia, one of Italy's oldest milling firms which has been under the same family ownership since 1824. A semolina mill, it will have 2 units with combined capacity of 240 metric tons wheat in 24 hrs. or 3,800 cwt. semolina. It will have 4 roller mills MDDB with roller bearings, plansifters with easy adjustment of flow scheme to quantity and the purifier MQRC with 3 sieve layers.

'Browning Reaction' Topic of Address To AACC Section

"Many of the foods enjoyed today owe their distinctive appearance and flavor to the browning reaction," said Dr. John A. Johnson, president of the American Association of Cereal Chemists, in an address before the January meeting of AACC's New York Section.

"Most people," said Dr. Johnson, "accept browning of foods without much thought of the chemical reactions involved. Even bakers, until recent years, thought of browning of baked products as due to caramelization of sugars and proteins. The browning of foods not only is related to development of color, but to flavor as well," he pointed out, adding that "it may be considered detrimental to many food processing operations, but in others it is beneficial and essential."

Dr. Johnson, responsible for baking research and instruction at Kansas State University, Manhattan, also spoke on AACC growth. He termed the organization as "sound and growing," pointing at the same time to many of the outstanding contributions made in the field of cereal chemistry.

Among these he listed work of the AACC technical committee, publication of a 7th edition of Cereal Laboratory Methods now pending, special schools such as the farinograph workshop and the sanitation methods schools held in New York, Chicago and San Francisco, and the forthcoming civil defense training course for the food industry planned to follow AACC's annual meeting in Dallas, Texas. «

Wheat Quality Council Schedules Meeting

The Hard Winter Wheat Quality Advisory Council will mark its first year as a regional organization with an annual meeting scheduled at the Continental Hotel in Kansas City Feb. 9 and 10.

Don Fletcher, executive secretary of the Crop Quality Council, Minneapolis, will meet with the council's executive committee and attend the general sessions.

The program will include a meeting of the executive committee, a session for collaborating chemists, both on Feb. 9. On Feb. 10 there will be a meeting for the council, a luncheon, and a session of the council and collaborators. «

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A one-volume handbook for chemists, engineers, research workers and students. It covers the newest applications of science to the fields of food and agriculture. Each chapter covers in concise form the most important, up-to-date information available on soils, plant growth, fertilizers, insecticides, nutrition, storage of raw products, food processing, preservation, spoilage, packaging, quality control, waste disposal and related topics. Mr. Blanck is a consultant to the U.S. Department of Agriculture.... **$15.00**

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The story of General Mills, Inc., from its beginnings in all divisions, to 1954. A dramatic story of one of the world's largest businesses **$4.75**

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Wheat Cleaning With the Indent Cylinder

Precise Length Separation Is a Subject That Has Caught the Attention of Those Concerned with Grains for a Long Time. Old Methods Are Being Improved and New Ones Are Coming Forward Regularly

By THOMAS E. HARTMAN

IN speaking of length sizers which utilize the indent cylinder — my primary subject — I might start by stating that I'm not certain of the inventor of length separation by this method. But there is evidence that the first such device was made from a hollow log in which a number of shallow holes were drilled.

Tom Hartman

As you know, we have progressed to a precisely produced, hardened metal cylinder in which has been punched a series of indents or pockets by use of a large mechanical press. These indents are basically hemispherical in shape. Material to be separated is fed into one end of the cylinder which is rotating. In this instance let us say the material to be separated is wheat combined with other grains, cracked grain and seeds. The various particles in the product to be separated are loaded into the pockets or indents by a combination of gravity and centrifugal force.

Center of Gravity

If the center of gravity of the particle falls within the lip of the indent the particle will stay in the indent as the cylinder rotates until it reaches a point near the top of the cylinder where the centrifugal force holding the particle in place is overcome by gravitational force which causes the particle to drop out into a trough-like mechanism.

If the center of gravity of the particle falls beyond the lip of the indent, then the particle does not stay in the pocket but tumbles out and is not lifted into the trough; thus we are separating the shorter particles from the longer by picking out the short ones, elevating them and collecting them in a trough inside the cylinder.

There are five basic components to the average single cylinder machine. The prime component is the cylinder itself which in most Superior machines is approximately 85 in. in length and 23 in. in diameter. The cylinder can be supplied in a number of indent sizes which are measured diametrically in 64th's of an inch. Indent sizes range from 4/64th's up to and including 36/64th's. They are produced in this wide range of sizes in order to meet the requirements of separating by length the products ranging from very small grass and clover seed to oats and corn. The speed at which the cylinder is rotated will also vary depending on the product being separated.

By use of a highly technical formula our engineers have determined the speed of rotation at which a particle under frictionless conditions could just be carried over the top. This rpm. would be in a 23 in. cylinder approximately 55.5 and, theoretically, the particle would remain in the indent, because at the top of its vertical travel in the cylinder, centrifugal and gravitational forces would be equal.

Therefore, and again theoretically, any speed of revolution less than 55.5 would cause the particle to drop out of the indent before reaching the top of the cylinder, because by reducing the revolutions per minute, the centrifugal force is also reduced. But since there is a co-efficient of friction to be dealt with, which is different for each product involved, the speed of revolution to produce the proper drop must be below the theoretical state.

Wheat Separation

For wheat separation we find this to be approximately 51 rpm. In other separations it ranges from 42 to 52 rpm. Since centrifugal force is in direct relation to the diameter of a rotating cylinder when rotating at a constant speed, it is very important that the cylinder be of equal diameter and as perfectly round as possible at all points. Should it not be, the forces will be distorted and, therefore, the drop of the particle will also be distorted and performance damaged.

Another important component of the cylinder machine is the trough. The trough is situated inside the cylinder and is the length of the indented portion of the cylinder.

This trough, by use of an external

Wheat cleaning—it was a problem yesterday, remains one today, and may be with us for some time to come. However, the engineers have taken what may have been the crude, original process for length separation of grains (a hollow log drilled with shallow holes) and advanced it to a modern, carefully designed system. At this point the indent cylinder comes into use. Mr. Hartman is sales manager for the Superior Co., a division of the Daffin Corp., and is located at Hopkins, Minn. His paper was delivered Jan. 28 in Minneapolis before a meeting of District No. 4, Association of Operative Millers.

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Type S Purifiers
offer these
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Sharp and more accurate separations.

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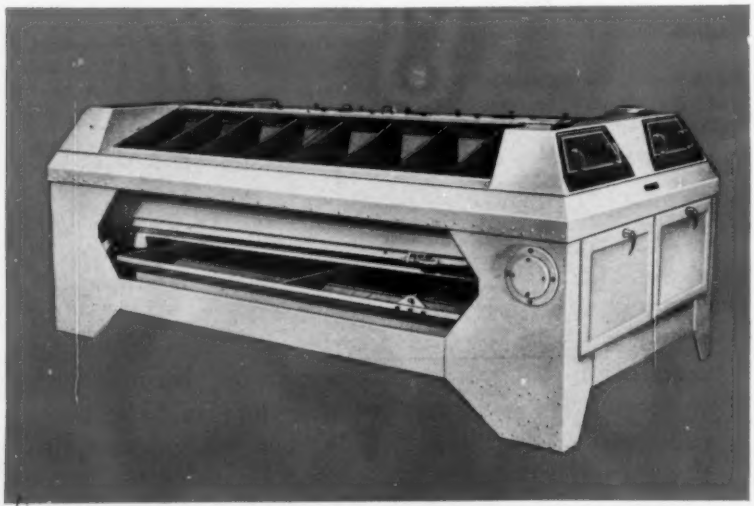

Engineers and Manufacturers—Complete Mill Projects

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hand wheel, may be set at various angles within the cylinder. If the lip of the trough closest to the grain carrying side of the cylinder is lowered, more of the product within the cylinder will be picked up. If this lip of the trough is raised, less of the product will be picked up. Thus, this trough allows us a great deal of flexibility within one certain indent size. Another way of putting this would be to say that when the trough is lowered, longer particles will be dropped into it; when it is raised the average length of the product dropped into the trough will be shorter. For cleaning out the cylinder and trough, this trough may be completely inverted.

Two Conveying Devices

There are two conveying devices within each machine. These are the screw conveyor inside the trough and the grain line blades which are welded to the outside of the trough. The conveyor inside the trough conveys all material picked up and dropped into the trough to one end of the cylinder machine where it is discharged. The grain line blades on the bottom of the trough are individual curved pieces of metal formed in such a manner that grain hitting them will be conveyed through the cylinder. These blades actually perform two functions:

1. They are responsible for conveying the grain not picked up into the trough through the cylinder to one end where it is discharged.

2. Their second function is to break up what we call the stationary vortex which forms in any rotating mass of grain. This rotating mass, which has been called the "Waltzing Kidney," due to its shape, will form a core of product which, unless disturbed, will not allow all particles to have an opportunity to come in contact with one of the indents. The grain line blade effectively disturbs this stationary vortex, allowing all particles an opportunity to either be picked up or rejected by one of the indent pockets.

A fourth component of the machine is called the "Retarder," a small curved metal piece which fits at the bottom of the cylinder on the discharge end. Retarder may be raised or lowered in order to raise or lower the level of grain within the cylinder. For cylinder separation to be effective, a level bank of grain should be formed inside the cylinder. If not, the grain will dwindle down to the discharge end of the cylinder, resulting in surging of the grain and pick up of particles which were intended to be rejected. When cleaning out a

cylinder, this retarder is completely lowered.

The last component to be described is the housing of the foregoing parts.

This housing consists of an intake hopper with cutoff slide or spreader door, discharge spouting and a square or rectangular machine housing with end plates. In this housing are various visual inspection ports which allow the operator to actually view the internal operation of the machine and make necessary adjustments. A dial to indicate the trough setting is also incorporated in this housing.

Now that I have explained the components and the function of the machine, I would like to review its actual use and location in the flour mill cleaning application.

The arrangement of cleaning equipment will vary from mill to mill, but generally the grain is first scalped and aspirated, which removes very large foreign material and lighter material such as dust and chaff. The grain will then go to a screen type machine which separates by width. This machine will remove foreign material which is wider and narrower than the useful product. After the screen operation, we generally find the length separation which is sometimes preceded and other times followed by a gravity type separation. After the length separation has been accomplished, various other cleaning methods are sometimes employed, such as impact cleaning, washing and additional aspirating.

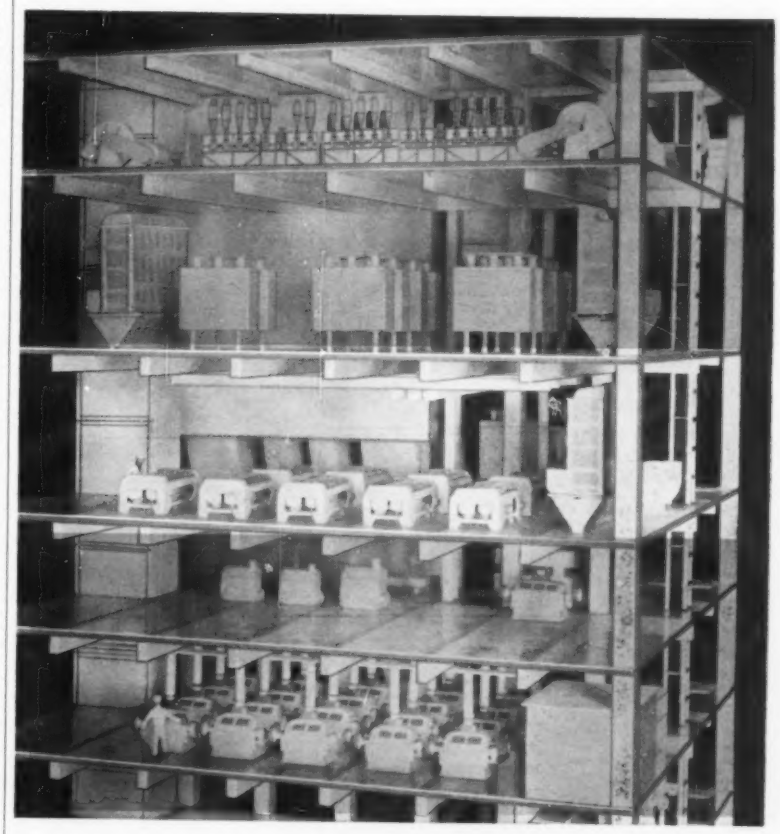
As I indicated earlier, Superior has recently introduced a cylinder machine consisting of eight cylinders which is now performing in three installations, the entire length sizing portion of the cleaning operation. This unit is made up of two banks of four cylinders each. The four cylinders consist of: (1) The introduction or splitting cylinder; (2) the double cylinder unit and (3) the oat cylinder.

Splitting Cylinder

The splitting cylinder carries the heaviest load and performs an initial separation of material by picking up medium length grain, short length grain, cracked grain and seeds; at the same time rejecting large grain (in this instance wheat), barley, oats and any other longer material. The large wheat, oats and barley are spouted to the bottom single or oat cylinder.

This cylinder is equipped with the proper indent size to pick up large wheat which is discharged from the trough and reject oats, barley and other long material from the cylinder proper. The pickups of the splitting cylinder, consisting of medium and small wheat, cracked grain and seeds,

Typical
SIMON-CARTER
mill installation...
including pneumatic conveying



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Keeping Wheat Clean (continued)

is spouted to the center double cylinder unit. The double cylinder unit is actually one cylinder inside another. Around the inside cylinder is the outer trough into which is dropped small wheat, cracked grain and seeds. From the outer cylinder is rejected the medium cleaned wheat. The material which has been picked up into the outer trough is then conveyed into the inside smaller cylinder.

Here, a separation of seeds from the cracked and small grain is accomplished. Therefore, from this double cylinder unit there are three individual streams consisting of: (1) Seeds and very small cracked grain, (2) large cracked and small clean grain, and (3) medium size clean grain.

Generally, the large cleaned wheat from the bottom cylinder, the medium cleaned wheat from the center double cylinder unit and the large cracked and small wheat stream from the double cylinder unit are combined to be further processed into flour.

The oats, barley and other long material stream from the bottom cylinder is discarded as screenings; the small cracked grain and seeds may be either discarded into screenings or run through an impact machine which will break up the black seeds so that they may be aspirated away from the remaining useable cracked material. For more complete single machine cleaning this eight cylinder unit may be equipped with a scalper and aspirator.

This new machine, which we are dubbing "The Miller 8" has the operating advantage of being at one location on one floor with flexibility of settings i.e.: Trough, retarder and cylinder speed, which allows the operator to adjust for varying grain conditions. Other arrangements of cylinders can also be produced should this unit not meet the specific requirements of a certain mill. The capacity of this unit doing exceptionally precise work is generally running from 350 to 400 bu. hr. In the large terminal machine utilizing this same four cylinder principle, where only rough cleaning is required, this capacity will run around 800 bu. hr.

One additional advantage in using a cylinder machine for length separation is the basic cost and cost of operation. The "Miller 8" as described sells for approximately $4,000, with single cylinder units being available at as low as $575. We have found in actual flour mill use that we can expect a life of approximately three years for a cylinder when the unit is being run 24 hours a day, six days a week. Putting this in another way, the average life will run from 5 to 6 million bushels of wheat passed through the unit at a running rate of 350 to 400 bu. hr. Individual cylinder shells cost from $125 to $150. A complete overhaul for an eight cylinder machine will run approximately $1,500. Therefore, we can show considerable savings in maintenance in several instances over other methods of length separation.

Floor space required for a "Miller 8" is approximately 10 ft. by 4 ft. The machine height is 7 ft.

We are able to take products from actual mills, for test separations. We process these in our model machine laboratory, returning separated portions to the owners with an explanation of equipment used and size of indent necessary to make each desired separation.

Therefore, we feel our experience with precise length separation by using the indent cylinder machine has shown the unit as unsurpassed in performance, low maintenance cost and one-location ease of operation. «

A CONVENIENCE FOOD, "Subtract," is being introduced by General Mills, Inc., in grocery stores in areas of the east and west coasts. "Subtract" comes in foil packets, is mixed with a glass of water. The new food is said to be tasty, convenient and nutritionally balanced for weight control programs. GMI explains that "Subtract" is a measured calorie food product, not a drug, which can be substituted—when mixed with a glass of water—for one, two or three meals a day in a dietary program. It comes in chocolate or vanilla.

Sprout, Waldron Opens Headquarters to Serve Latin American Market

Sprout, Waldron & Co., Inc., has sharpened its attention on the Latin American market with establishment of a headquarters in San Antonio, Texas.

Announcement of the move was made by Harold J. Alsted, vice president in charge of sales for Sprout-Waldron. From now on, said Mr. Alsted, the company's sales program in Latin America will be under the direction of Gerald R. Senra, who has set up the San Antonio headquarters.

Prior to moving to San Antonio Mr. Senra was Latin American sales manager for the firm at Muncy, Pa., for a period of three years. For the past 10 months he has been living and working in Mexico City. «

MEN GOING PLACES

International Milling Co., Minneapolis, has named **Roy B. Jewett** treasurer. Mr. Jewett, controller of International, was elected assistant treasurer in 1955 and controller in 1957. He is a graduate of the University of Minnesota and was director of research for the Minnesota Department of Business Research and Development prior to joining International in 1948. During World War II Mr. Jewett was a field supervisor for the War Manpower Commission and served as branch economist for the grain and flour milling branch, food and restaurant division, Office of Price Stabilization, during the Korean emergency.

Roy B. Jewett

●

G. L. Alexander

Robert J. Hatch

John P. Cole has been named merchandising manager of the grain division of Cargill, Inc., Minneapolis. He is replaced by **Gordon L. Alexander**, as manager of the firm's six-state northwest division, and **Robert J. Hatch** takes over Mr. Alexander's former position as chief merchant for coarse grains. **W. B. Saunders**, vice president in charge of the division, reports all three are experienced in domestic grain merchandising and in sales of U.S. grains for export. Mr. Cole has travelled widely in the Orient and is familiar with West Coast export operations. Mr. Alexander will be responsible for sales and procurement in his six-state area. Mr. Hatch has worked for grain merchandising firms in Canada and Switzerland as well as for Cargill in the U.S.

John P. Cole

●

Baker Perkins, Inc., Saginaw, Mich., has named **E. V. Waack** vice president in charge of sales for the firm's food machinery division, suc-

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Improved

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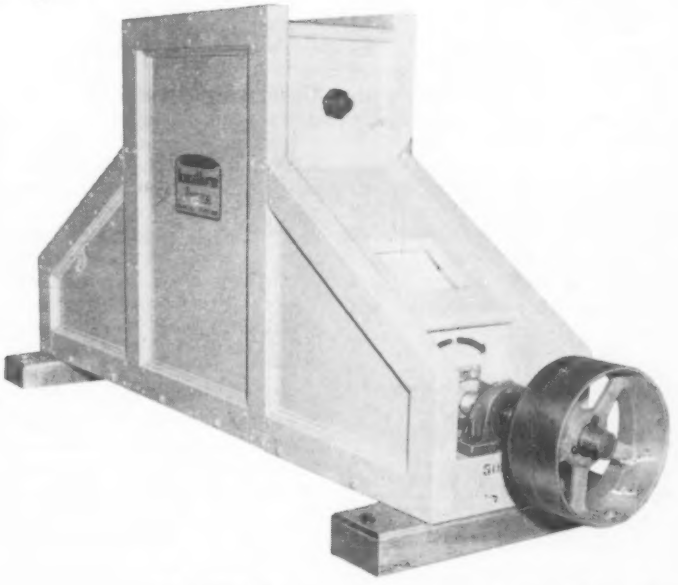
ADAPTABLE FOR ALL MILLS



An excellent bleaching agitator for bleaching, blending, mixing. Available in sizes to fit all mills. Made of heavy solid poplar wood with hi-gloss enamel exterior finish. Epoxy-resin coated inside for utmost in sanitation. Gas proof with new adjustable shaft seal.

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ceeding **Claud Bryson** who has retired after 34 years service, **P. B. Harley**, president, reports. Mr. Waack, who recently transferred to Saginaw, joined Baker Perkins in 1946 as an engineer in research and development and later became head of the baking laboratory. He was named sales engineer for the Philadelphia area in 1954 and transferred to the New York office in 1956.

●

Bert A. Jakobson, graduate of the 20-week course in Baking Science and Technology at the American Institute of Baking, and a former Marine Corps warrant officer with 14 years experience in food service, has joined the AIB staff as a lecturer in bread production.

●

Philip C. McGrath

Louis J. Finn

Bemis Bro. Bag Co. retired two veteran employees Jan. 30. **Louis J. Finn**, manager of the Peoria plant and paper mill, and **Philip C. McGrath**, special assistant to the director of sales in the St. Louis general offices. Both men have served the Bemis organization for nearly 50 years. Mr. Finn, with the Peoria plant since 1925, served as sales manager and assistant plant manager and paper mill manager before becoming manager in 1949. Mr. McGrath served as manager of the St. Louis bag plant and sales division from 1953 until last October.

●

Bemis has appointed **Robert L. Baker, Jr.**, as sales executive in charge of the Cleveland sales office. Mr. Baker who joined the company nearly 25 years ago as a laboratory assistant, was a factory representative, assistant sales service manager, and sales service manager before becoming a sales executive.

R. L. Baker, Jr.

●

Responsibility for the sale of millfeed output of the General Mills, Inc., Kansas City and Wichita plants is assumed by **Edward B. Rhea, Jr.**, in his new capacity as millfeed sales representative at Kansas City. **J. W. Scholtes**, who formerly handled this activity for many years as the firm's Kansas City millfeed representative, will now concentrate full attention on mill operations control and other mill management functions.

●

Richard Longeway, former grain merchant for Cargill, Inc., in Portland, Ore., has been named manager of the firm's Cedar Rapids, Iowa, branch office, **Walter B. Saunders**, grain division vice president, has announced. He replaces **W. Dart Smith**, who retired recently after 27 years with Cargill. Mr. Longeway, a native of Minneapolis, joined the firm in 1951 at Cedar Rapids.

●

William S. Doolan now carries the title district sales manager of the newly-created South Atlantic district for the bag division of St. Regis Paper Co. The district includes Georgia, South Carolina, western North Carolina and eastern Tennessee. It's part of the division's southeastern regional organization headed by **John B. Brent**, regional sales manager, headquartering in Birmingham.

●

Glenn O. Munger has joined the agricultural chemical division staff of Thompson-Hayward Chemical Co., Kansas City, in a new post — he's grain sanitation director. In his new capacity Mr. Munger will head sales of all products and services connected with grain and food sanitation, food storage and food transportation. A Kansas State graduate with B.S. and M.S. degrees in entomology, he has acted as president of Technical Consulting and Services, Inc., Wichita, Kansas, for the past two years. Prior to that time, he served as vice president of Industrial Fumigants Co., Kansas City.

G. O. Munger

●

Separation of the grocery, institutional and bakery trade divisions of Fisher Flouring Mills Co.—because of heavy supermarket activity in the firm's flour and cereal volume in southern Oregon — brings some changes in management. **Don K. Nairns** succeeds **R. E. McElhose** as head of the grocery trade division at Medford, Oregon. Mr. McElhose, however, will continue to represent the company's feed and bakery operations. Word of the changes comes from **Robert L. Erzinger**, sales and advertising manager, grocery products division, Seattle, and **Raymond Ryland**, Portland sales supervisor.

●

Now assistant general sales manager for U.S. bakery flour, International Milling Co., is **Lee W. Walden**, who started with International in 1946 as a member of the traffic department in Minneapolis and held several positions in traffic for some time, including that of traffic manager in 1949. He was moved up to manager of production planning for the company in 1952, moved into bakery sales work in 1954, and became assistant to the vice president in charge of bakery and durum sales. He held this position until his current promotion, states **Philip Von Blon**, vice president in charge of bakery and durum flour sales. Reporting to Mr. Walden will be **Edward H. Schlachter**, U.S. millfeeds products sales manager, whose duties will be expanded to include work in bakery sales. Also reporting to Mr. Walden will be **Kenneth M. Seaman**, Minneapolis export sales office manager.

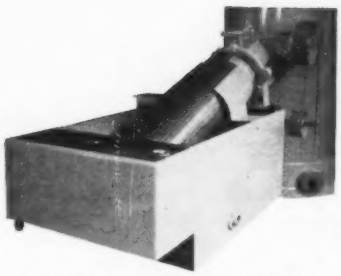
Lee W. Walden

●

Canada:

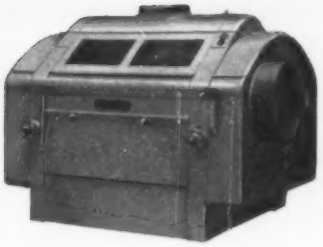
Maple Leaf Milling Co., Ltd., Toronto, has named **Joseph H. Hulse** as deputy director of research, effective March 1. By way of background, Mr. Hulse has headed the food research in the Defense Research Medical Laboratories at Toronto. He studied at the University of Manchester and the Royal College of Science and Technology, Glasgow. He also served four years with the R.A.F., is past president of the Canadian Institute of Food Technology, chairman of the institute's international relations committee, vice chairman of the Canadian committee on fats and oils, associate editor of the I.F.T., and Canadian representative of the Commonwealth Food Defense Working Group. «

Joseph Hulse



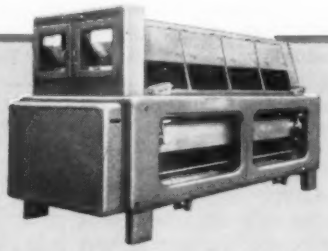
Grain Washer & Stoner with **Whizzer** removes light and heavy impurities. Gentle, wet scouring. Uses relatively little water.

Pneumatic Conveying saves valuable space, is sanitary, automatic, economical and easy to install. No fire hazard.

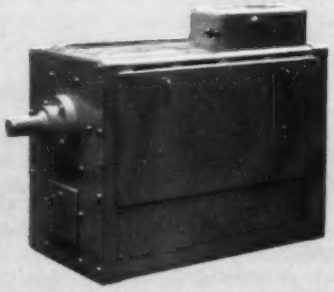


Buhler 4-Roller Mills require less floor space and less power than others of similar capacities. Water-cooled rolls available.

Everything you need
for modernizing your mill



Triple-Deck Purifiers give highest percent of clean, low-ash flour. Because of third deck, repurification is not necessary.



Impact Finisher removes the last traces of flour from bran. Flour is fine, light in color; no brushes to adjust, no wearing parts.

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Then it will pay you to investigate the ways you can increase the efficiency of your mill with the help of BUHLER-designed, and BUHLER-built machinery such as you see here.

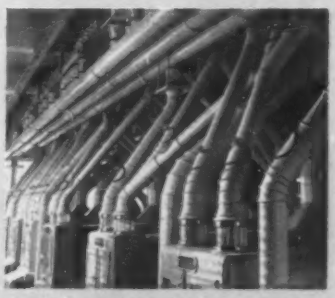
But BUHLER offers you more than finely-engineered equipment. It offers you the experience gained in designing and building hundreds of money-making mills in all parts of the world.

And it offers you the experience of skilled, factory-trained flour milling specialists who will be glad to visit you, study your requirements and recommend the most effective system for your particular need.

Service and delivery are prompt.

These are just a few of the reasons why today, *more mills are operating with* BUHLER *Equipment and the* BUHLER *System than with any other.*

High-Efficiency Sifter is absolutely leak-proof. Sieves and sieve trays can be removed individually by one man from either side.



Prefabricated Metal Spouting is easy and quickly installed, sanitary and completely leak-proof. Available in three standard sizes.

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A Milling Technology Feature

Moisture • Time • Temperature

These Are the Key Factors

In Wheat Conditioning

By ERNST AUER

TIME . . . moisture . . . temperature—these are the factors affecting tempering.

The factor of moisture has a very narrow limit, an "economic" limit on the lower side and a practical limit by the grinding process on the high side.

Ernst Auer

Therefore, we are left with variations restricted practically to the remaining two factors of time and temperature. Here again we find a limit, but with a much wider range than for moisture. This limit is the maximum permissible temperature for wheat beyond which protein damage will occur.

The lower the applied temperature, the longer the time factor has to be. And if we do not use any temperature at all, we need lots of time. This way of preparation—without the application of heat—is by damping the wheat and keeping it for hours or days in tempering bins.

The disadvantages of this process are well known. It takes much time and a large capacity for tempering bins. And, after wetted grain is brought into the tempering bins, practically no changes can be made to correct the moisture content, or to effect a uniform mellowed wheat. If the humidity of the air was always known days ahead, many a headmiller with a cold tempering system would have less trouble.

Tempering Time

In order to shorten the tempering time, the application of steam has been employed successfully to a certain degree. Any direct application of live steam has its limitations, since excessive heat will change the quality of the gluten—but not always to the best. It is possible to improve a weak gluten by steaming the wheat, but this process is very difficult to control.

One piece of equipment, a so-called steam-worm conveyor, is used for the improvement of wheat with a weak gluten—or a wheat mixture with a certain percentage of sprouted wheat, which has to be improved in its baking quality. The disadvantage of this apparatus is an uneven contact of the steam, resulting in uneven moisture pick-up and uneven heat transfer.

A microscope will show how difficult it is to hit the correct depth by treating the wheat with high temperatures. If the normally good gluten of the endosperm is over-heated, the baking quality will be reduced.

European millers, who have always used a large percentage of imported varieties of wheat mixes, recognized early the advantage of special conditioning equipment, which made it possible to equalize millability of the various wheats.

Since about 1925, the year of the first MIAG Radiator - Conditioner, more than 2,000 MIAG Radiator-Conditioners have been sold. The adaptability of a Radiator-Conditioner to the various situations likewise has made it as well suited in years of wet crop as in normal years.

Normally, the wheat coming from a washer or a damping worm with a moisture content of approx. 16-17% is treated for one to two hours at temperatures of around 110-120°F.

One very important feature of the Radiator-Conditioner is design of the heating sections, the radiator sections, since only a uniform flow of the grain and a uniform transition of the heat to the grain will result in a satisfactory treatment.

Let us discuss the different designs of radiators:

The radiators used today, contrasted with those of former years, guarantee a uniform flow and a controlled increase of the temperature of the grain.

According to the requirements, each or part of the MIAG radiator sections is equipped with air suction channels for adequate moisture control without changes in the temperature, so that the sweating process during the treatment of the grain will not be disturbed.

In situations where it is desirable to extract a higher amount of moisture, one or two drying sections are installed.

One conditioner has, for instance, five radiator heating sections and one drying section, one inlet and one cooling and outlet section. According to the capacity, a conditioner may have three or up to seven heating sections and one or two drying sec-

Wheat conditioning: What do we know about it? What is its aim? Simply put, it means preparation of grain with the help of three key factors, moisture, time and temperature. The aim is to bring the grain to the condition best suited for several purposes: In the case of wheat these purposes are: (1) Either for the grinding process (resulting in better mellowing, good yields of low ash flour and better color), which probably is the most important aim in the U.S.; (2) for improved baking quality of the flour, or (3) for better yields "and" improved baking quality. Mr. Auer is vice president and general manager of MIAG Northamerica, Inc. His paper was presented before the January meeting of the Chicago Millers Club.

tions besides the normal inlet-cooling and outlet section.

Fully Loaded Conditioner

Since the conditioner has to be kept fully loaded, the intake hopper is connected with the outlet. Whatever load is brought to the conditioner will be released by the outlet.

The changes of temperature and moisture during the conditioning process can be described: Let us say we have a conditioner with one inlet section, five radiator heating sections, the cooling section and the outlet. The time of treatment is in this case 140 min.

The moisture content of the wetted grain starts with 16%, and after 50 min., the moisture content starts to reduce gradually to 15% within the next 80 min. as desired at the first break roll.

The temperature of the grain at the inlet is 59°; after 50 min. a maximum of 180° is reached, and kept for about 60 min. In the cooling section the temperature is reduced to about 68°.

The grain at the outlet of the conditioner will be only slightly warmer than at the inlet of the conditioner. Naturally, the outside temperature as well as the humidity of the air will affect the temperature of the treated grain, but the grain leaving the conditioner is only slightly warmer than the atmosphere due to adequate means of regulating the entire conditioning process.

In another example, practically the same, we have the original moisture content of the grain, the added moisture necessary for tempering, and the desired moisture for the milling process.

By regulating every individual section of the conditioner, in practical operation the temperature—as well as the moisture of the grain—will not be kept at a straight line. A more or less pulsating treatment increases the tempering effect and brings a better mellowing and milling behavior of the grain.

After the conditioning process is done, it is advantageous to bring the wheat into bins for a rest period of 6 or 8 hrs. prior to the grinding process.

Now let us discuss the place of a conditioner in the wheat cleaning system.

The wheat is cleaned in separator and scourer, as well as in the pneumatic lifts, and then is brought to the stoner and washer. Here the wheat will not only be washed, but will also pick up the necessary moisture for the conditioning process. Should the wheat be very dry, it is recommended that the washer be followed with an additional damping device.

A Radiator - Conditioner equipped with a pre-heating and steaming conveyor, as well as with a drying section, would be the universal equipment for the conditioning of spring wheats, as well as of soft wheats. For spring wheats the drying section would not be necessary, and the pre-steaming only under special conditions.

After the Conditioner

After wheat leaves the conditioner, it is lifted up and air-cleaned at the same time, and goes into bins for a final tempering time. The capacity of these bins should be approx. 6 to 10 hrs. of the mill capacity.

A final cleaning action is performed by a brush machine, where all loose fibre is removed, reducing the ash on the first break flours. The final pneumatic separator will separate

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Are Synonymous with

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small and broken kernels from the heavy wheat. The latter will go to the first break, whereas the broken and small wheat kernels should go to a special pair of rolls and to the third or fourth break. Summing up the advantages of a Radiator-Conditioner, it can be said:

1. Washing the wheat is no problem, even in years with a wet crop.
2. A correct moisture content for the grain coming to the first break can be maintained and changed on short notice should weather change make this desirable.
3. Shorter tempering time permits a quicker change of the wheat mix.
4. A better and more uniform mellowing of different varieties of wheat in the mill mix will result in better grinding performances and higher yields.

We have developed, in connection with operative millers and cereal chemists, an instrument which permits testing of the hardness of the endosperm in a very easy way. This instrument, the Smetar, was described at the AOM technical conference in Dallas.

The principle of the Smetar is similar to the hardness test of steel. A diamond is placed under a given weight on the surface of the endosperm, and the length of the indent is an indication for the hardness of the endosperm. The Smetar gives the miller a very practical tool to check on his tempering and conditioning system.

The dimensions of a Radiator-Conditioner for a load of 500 bu. per hour are about 6 x 6 ft. of floor space and a total height of 60 ft.

The steam required for the heat exchangers should have 30 psi, but higher or lower pressure can be used. About 2.8-3.0 lb. steam at 30 psi pressure are required per bushel capacity per hour. The total horsepower requirement, including the fan for the air suction, is about 15 h.p. for this size conditioner.

Another application of a conditioner is what we call the oat kiln. Here we work with considerably higher temperatures, and with the help of a steam application ahead of the radiator kiln, we reach grain temperatures up to 240°F., and such high temperatures are required to stabilize certain enzymes in the oat kernel.

The oat kiln has been used as well on whole oats ahead of hulling as on groats for the purpose of stabilization mentioned earlier. Today probably most hulling installations are with kilns used for groats after an impact hulling at natural moisture of the oats.

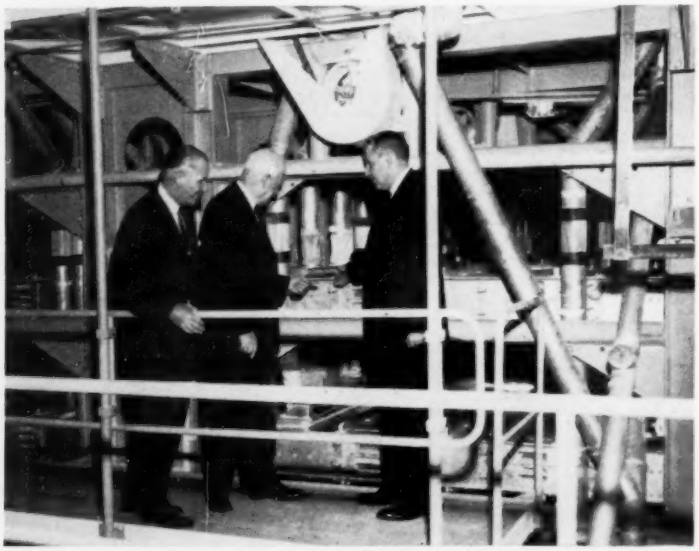
Heat Exchangers

Where we use heat exchangers from steam to water for wheat in order not to damage protein or most of the enzymes in wheat, we cannot use this method on an oat kiln. Here we use radiators which withstand considerably higher pressure, and where we apply steam directly in the radiators. Many of these installations are in use in many countries all over the world, including the U.S.

These applications of time, temperature, moisture, steam, hot air, warm air and vacuum have made it desirable for a long time to reproduce or to examine such processes in the laboratory. Therefore we developed early a laboratory conditioner.

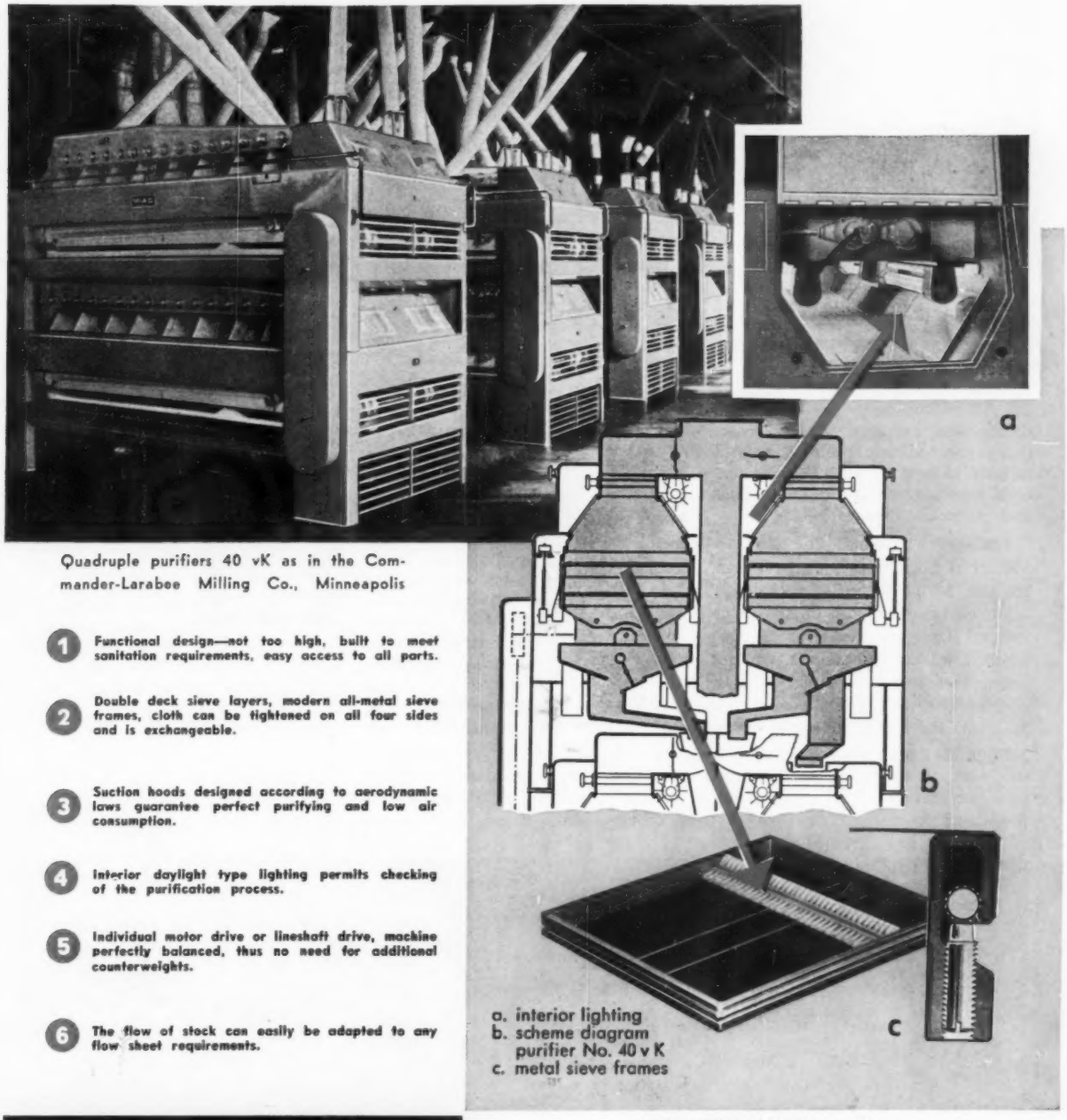
The first laboratory conditioner was built in 1930, and the apparatus has been changed and improved over the years. It is now a unit in which approx. 15 lb. grain can be treated with contact heat, direct steam applications, hot air, cold air and under vacuum. Of course, all these applications are controlled, and we feel that this unit is a very valuable tool, not only for research application, but also for production control. «

DR. HEINZ CLEVE, left, chief of the flour milling research laboratory of MIAG, Brunswick, West Germany, was a recent visitor to the U.S. and offices of THE Northwestern MILLER. Dr. Cleve visited in Minneapolis with Ernst Auer, vice president and general manager of MIAG Northamerica, Inc., at the right.



HARRY ZINSMASTER, chairman of the board, Zinsmaster Baking Co., center, joins Herbert Wortman, director of production for Zinsmaster, left, and D. A. Stevens, vice president of General Mills, Inc., right, on a tour of GMI's Bellera "Air Spun" milling unit in Minneapolis. Mr. Zinsmaster, in commenting on his tour, cited techniques developed by the milling industry, of which Bellera "Air Spun" has been a key factor the past year, as "of utmost importance to the nation's bakers in their continuous striving for better quality and improved uniformity in the baked products they offer the consuming public." He congratulated General Mills for another basic "assist" in this direction, and expressed every hope that "the new Bellera milling process will give us the product that our modern production techniques demand.

MIAG ALL-METAL PURIFIERS
quadruple design



Quadruple purifiers 40 vK as in the Commander-Larabee Milling Co., Minneapolis

1. **Functional design—not too high, built to meet sanitation requirements, easy access to all parts.**
2. **Double deck sieve layers, modern all-metal sieve frames, cloth can be tightened on all four sides and is exchangeable.**
3. **Suction hoods designed according to aerodynamic laws guarantee perfect purifying and low air consumption.**
4. **Interior daylight type lighting permits checking of the purification process.**
5. **Individual motor drive or lineshaft drive, machine perfectly balanced, thus no need for additional counterweights.**
6. **The flow of stock can easily be adapted to any flow sheet requirements.**

a. interior lighting
b. scheme diagram purifier No. 40 v K
c. metal sieve frames

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BRAUNSCHWEIG (Western Germany)

Making the Marketing Concept Work

By PORTER V. TAYLOR
Special Correspondent

The National Manufacturers Assn., During Its Winter Workshop Session, Did Just That –Members Covered Their Industry from Crop to Consumer. And They Have a Sharp Eye on Promotion of Their Products During the 20th Anniversary of Enrichment in 1961.

MARKETING—and the manner in which production and distribution pertain to it—was covered in depth and with energy at the winter workshop session of the National Macaroni Manufacturers Assn. in Hollywood, Fla. Sparked by plans to tell "their" message of enrichment during this, the 20th anniversary of the "Quiet Miracle," macaroni men listened to reports on the durum outlook, new enrichment developments and promotional plans.

Emanuele Ronzoni, Jr., Ronzoni Macaroni Co., New York, president, set the pace for the sessions by acknowledging support of the Agricultural Council, the Crop Quality Council, millers and other groups for joining to secure government cooperation in overcoming the durum rust problem. He expressed optimism regarding the per capita increase in consumption of macaroni products and the current popularity of Italian foods. "This fashionable liking for Italian foods," he said, "is not by mere chance, but has come about through publicity and promotions sponsored by the Macaroni Institute, the Wheat Flour Institute, and individual manufacturers.

"However," he added, "the per capita consumption of our products is still low compared to that in other countries, and our marketing methods must become more efficient if we are to meet the competition of other food industries."

Don Price

Robert M. Green, NMMA secretary, Palatine, Ill., summarized workshop meetings of previous years, which dealt with executive skills and cost reduction. Mr. Green introduced Don Price, vice president of the Norton Co., Worcester, Mass., marketing authority, who stressed the close relationship between production, selling and distribution.

Durum Crop Report

Gene Hayden, associate secretary of the Crop Quality Council, Minneapolis, reported on the 1960 durum crop and prospects for 1961, pointing out that "good early season growing conditions got the last crop, on an expanded 1,683,000 acres, off to a good start, resulting in a 1960 harvest of 34 million bushels." Despite later heat and drouth, he reminded the meeting, per acre yields of 20.6 bushels were well above long-time averages, and second only to the record yields of 1958.

Gene Hayden

"Several factors will determine the acreage seeded to durum in 1961 by Upper Midwest growers. These are the extent of moisture reserves, the

TWO MEMBERS OF THE panel which discussed protein additives at the winter workshop session of the National Macaroni Manufacturers Assn. pause for the camera at the extreme left. They are, left to right: Charles Hoskins, Hoskins Co., Libertyville, Ill., and A. A. Kaehler, president, Special Foods Co., Red Wing, Minn. In the center picture are a couple of NMMA's key officers, pausing momentarily during one of the sessions, left, Robert Green, executive secretary, and at the right, Emanuele Ronzoni, Jr., president. At the far right are some international representatives at the workshop, caught by the camera during a round-table session. Left to right are D. Ricci, Ontario Macaroni Co., Toronto; John Pavia, Toronto Macaroni Co.; V. Hechion, also of Ontario Macaroni; Mr. Hoskins, sitting in with the international group, and Mario Braibanti, Braibanti & Co., Milan, Italy.

market price for durum prior to seeding, as well as availability for the first time of substantial quantities of seed of two new durum varieties," he said.

Mr. Hayden continued, "Approximately 1 million bushels of the new Lakota and Wells varieties were produced by North Dakota growers in 1960. A substantial portion of the 1961 crops will be seeded to these wheats for the first time. Good yielding ability, shorter straw than previous durum, and a different type of stem rust resistance should make these wheats attractive to growers.

"Remembering the stem rust losses of the early 1950's," added Mr. Hayden, "growers will probably continue to seed substantial acreages of Langdon and Ramsey, which made up about 90% of the 1960 crop. A diversified acreage will reduce the possibility of widespread rust losses if dangerous races should increase."

Looking to the future, Mr. Hayden added, "The genetic ground-work is being laid by plant scientists so that additional durum varieties will be under development to meet ever-changing crop production problems. Winter plantings in Mexico and rust tests in Puerto Rico are important parts of this continuing effort."

Howard Lampman

Howard Lampman, executive director, Wheat Flour Institute, urged the industry to tell the story of enrichment with promotional materials built around the May 27, 1961, 20th anniversary of enrichment.

MARIO BRAIBANTI, Braibanti & Co., Milan, Italy, at the right, samples a dish of protein enriched spaghetti during a session of the NMMA workshop. The spaghetti used in the demonstration was manufactured specially through cooperation of Delmonico Foods and the Ardex division of Archer-Daniels-Midland Co. At the left is NMMA's director of research, James J. Winston.

"Tools for Marketing"

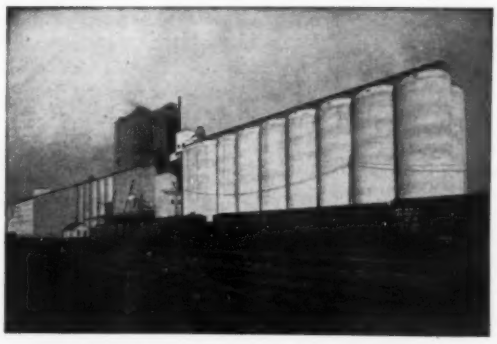
He described "tools for marketing" as film strips, wheat booklets, recipe booklets and other advertising materials built around enrichment as a "Quiet Miracle." He said, "Although the enrichment program for macaroni manufacturers is completely voluntary, more than half of all macaroni products sold today are enriched. Macaroni manufacturers have a good story, but because they have failed to tell this story there is a need for the industry to build public acceptance and to re-establish macaroni products in the public mind as being a nutritious food."

He suggested that the macaroni industry follow examples of the dairy industry by placing an appropriate emblem upon their products to inform the public of the nutritional benefits.

Protein Additives Panel

James J. Winston, NMMA director of research, was moderator of a panel

STRATTON-THEIS GRAIN CO.



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W. C. Theis, Secretary

on protein additives to macaroni products.

Louis A. Viviano, Jr., Vitamins, Inc., Chicago, described the possibilities of defatted wheat germ as a protein additive. He said that this product contains less than 1% fat after it has been processed by his company. He also mentioned that it is acceptable as an additive under existing federal standards up to 5% of the weight of the finished product. Samples were distributed to show recent improvements in color, which had at one time made the product objectionable. The increase in cost was said to be less than ⅓¢ lb. A chart was circulated showing the general composition of defatted wheat germ.

A. A. Kaehler, president of Special Foods Co., Red Wing, Minn., described V-10 protein additive. Mr. Kaehler said, "All of you know that consumers have shown in their buying habits that they will not only accept—they demand—progress and continued improvement in the food they buy—or they turn instead to others." He also showed charts illustrating the increase in protein by adding V-10 to macaroni products. The V-10 additive was also said to add materially to firmness and resistance to overcooking.

Charles Hoskins, Hoskins Co., Libertyville, Ill., also stressed the advantages of an additive which would help prevent overcooking. He said, "One of the biggest needs is for macaroni products which can withstand overcooking and long storage in the cooked state. A macaroni product which is inexpensive and could stand up to restaurant cooking and steam tables would be a godsend to people who are forced to eat in such places."

Pilot Plant, Laboratory

Mr. Hoskins also mentioned canned and frozen spaghetti products as being in need of resistance to overcooking. He said that his company had operated a pilot plant and laboratory for two years, making about 100 different formulations of macaroni products. Soy was said to be one of the least expensive of the protein supplements and, according to Mr. Hoskins, soy macaroni could be sold in grocery stores to provide protein cheaper than hamburger, canned tuna or processed cheese.

Other protein supplements mentioned by Mr. Hoskins were milk proteins, lysine, wheat germ, gluten, egg white and V-10.

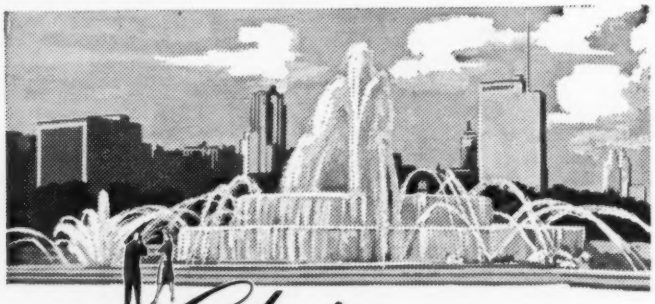
ADDITIVES IN ACTION at the NMMA winter workshop session—and here we find Joseph Viviano, macaroni manufacturer, sampling a dish of spaghetti prepared with Ardex 550 by Delmonico Foods. At the right, John Florence, Ardex representative, looks on with apparent approval.

John O. Florence, Prochem division, Archer-Daniels-Midland Co., Minneapolis, described a protein product called Ardex 550 which his company has developed from the soybean. It was said to be odorless and tasteless and, when used at a 17% level, capable of giving finished macaroni products 20% protein which compares favorably with fresh meat.

Mr. Florence said that this mixture is also resistant to overcooking, having the ability to remain firm over a long period of time in steam tables without matting or sticking.

Mr. Florence's company, in cooperation with Delmonico Foods, has manufactured special samples of spaghetti with Ardex 550. Some of this spaghetti was cooked and served during the meeting.

Advertising plans for the coming year were outlined by Mr. Sills, public relations counselor, and Hugh Chamberlin, advertising manager of the Evaporated Milk Division, Carnation Milk Co. A recipe combining macaroni, tuna, olives, and milk will be featured in national consumer magazines, radio and television programs, and in posters and recipe material at the supermarket level. «



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Dr. Norman Jolliffe to Be Honored For Contributions to Enrichment

Dr. Norman Jolliffe, director of the bureau of nutrition for the New York City Department of Health and one of the prime movers in enrichment, will be honored at a dinner Feb. 27, denoting the anniversary of enrichment.

Dr. Norman Jolliffe

The American Bakers Assn. and the American Institute of Baking will be hosts, and guests will include eminent scientists who have worked on nutrition, leaders of the baking industry from the New York area, and food and science writers.

John C. Koetting, chairman of the board of governors of ABA, will preside at the dinner. Speaker of the evening will be Dr. W. H. Sebrell, Jr., formerly director of the National Institutes of Health and presently director of the Institute of Nutrition Sciences at Columbia University.

Tribute Planned

A tribute to Dr. Jolliffe will be offered by Dr. Frank G. Boudreau, president of the Milbank Memorial Fund scientific organization who, during his long medical career has worked in the area of public health, and has ardently supported the enrichment program. Howard O. Hunter, president of AIB, will present a testimonial to Dr. Jolliffe, who will give a short talk of acceptance.

Dr. Jolliffe has won international recognition for his distinguished contribution to human nutrition. He was instrumental in establishing the medical need for the enrichment of bread.

He has served on faculties of the College of Physicians and Surgeons of Columbia University, where he currently is lecturer in public health nutrition, and of the New York University medical school. For many years he was in charge of medical services for the psychiatric division of Bellevue Hospital, where he conducted much of his early work in the diagnosis and treatment of vitamin deficiency disease.

Series of Papers

In the 1930's Dr. Jolliffe established the medical need for more adequate vitamin intake in a series of papers describing the clinical evidence of endemic beriberi in the U.S. His authoritative analysis of thiamine inadequacy in the American diet was influential in enlisting the support of the medical profession for the enrichment movement.

As a founding member of the Food and Nutrition Board of the National Research Council, Dr. Jolliffe repeatedly testified on behalf of enrichment before the Food and Drug Administration and the War Food Administration. After the movement was launched, he continued his active support not only in further clinical evaluation of the success of bread enrichment in curbing beriberi and pellagra, but in giving of his time to write and speak on behalf of enrichment for numerous professional and lay groups.

He was a member of the international survey teams to Newfoundland in 1944 and 1948, and directed nutrition status surveys in Brazil, Cuba and Formosa. In 1956, he received the Carlos J. Findlay award for his contribution to the public health of Cuba.

Born in Knob Fork, W. Va., Dr. Jolliffe has specialized in medical nutrition since his graduation in 1926 from the New York University College of Medicine, and his internship at Bellevue Hospital. He became instructor in physiology at the university medical school in 1930, assistant professor in 1934, associate professor in 1939, and from 1946 until 1949 was associate professor of clinical medicine. Concurrently, from 1932 until 1945, he was chief of the medical services for the psychiatric wards at Bellevue.

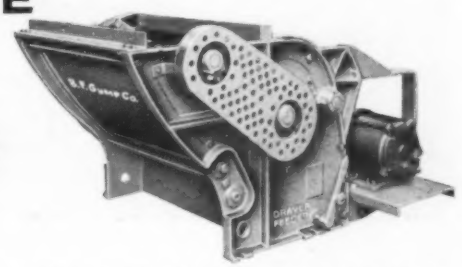
Nutrition Clinic

In 1945, Dr. Jolliffe opened the first nutrition clinic for the New York City health department, initiating his work in the medical control of obesity for which he has gained international recognition. He became director of the department's bureau of nutrition in 1949.

Member of the faculty at Columbia University medical school since 1946, he was associate professor of nutrition for the university's school of public health from 1949 until 1958, and has served since 1959 as lecturer in public health nutrition.

Dr. Jolliffe has served as vice chairman of the subcommittee on medical nutrition of the National Research Council, in addition to his long-term membership on the Food and Nutrition Board. «

JUST THE RIGHT FEED RATE



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Hammer and attrition mills, sifters, dryers, and other process machines do their best—production-wise and cost-wise—only when fed at desired capacities—uniformly. With a Gump Draver Feeder to regulate the feed, you'll eliminate shut-downs caused by overfeeding, and minimize under-production brought about by starving your processing unit. With a Draver Feeder, each machine *can be kept at top production efficiency* and quality control will be simplified. Whatever your needs—small or large capacity, continuous or automatic batch system—we have the size and style Draver to suit your process machines. Write or call for details, without obligation.

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SMICO NEW AND ... with 25

Milling companies throughout the United States have approached SMICO regarding furnishing the American market with a complete new line of flour milling machinery, pneumatics and equipment, incorporating United States and Continental designs.

This machinery to be Fully Automatic and Semi-Automatic Roller Mills; Stream Line Purifiers; All Steel Sifters; Finishers; Wheat Washers; Scourers; Brush Machines; Separators; Aspirators; etc. The Multiple Pneumatic Systems designed for wheat house cleaning systems and the milling flows.

SMICO can now furnish equipment for a complete mill to also include Percentage Feeders, Aspirator Heads, Prefab Spouting and Transitions, Rotary Air Locks, Pneumatic Feeders, Fans, Moisture Applicators for wheat, Grinders, Mixers, etc.

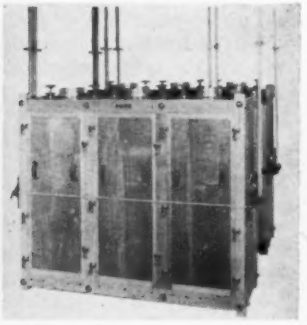
Mr. Frank Shidler, president of SMICO and Mr. Ot Zimmerman, president of SMICO Sales, traveled to Europe visiting Denmark, Sweden, Holland, Belgium, France, Germany, Austria, Switzerland, Italy, England and Spain surveying the milling machinery manufacturers and flour mills of these nations.

The purpose of this trip was to select an established firm, with years of experience who would be in a position to furnish SMICO and the American market, machinery, pneumatics and equipment, with quality in workmanship, incorporating United States standards.

In Spain the MORROS Company, and owner Moises Morros was visited. While in Barcelona it

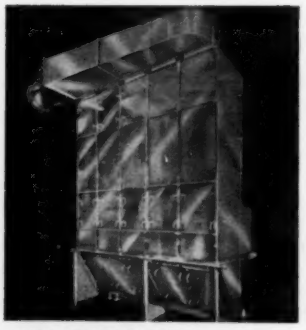
NEW MILLS

PNEUMATIC INSTALLATION



SMICO SIFTER

PNEUMATIC CLEANING WITH ASPIRATORS



SMICO SUCTION FILTER
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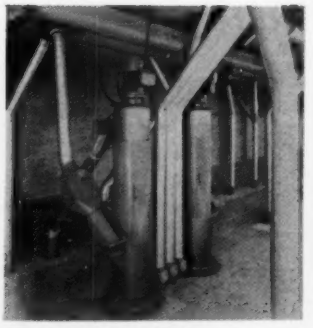

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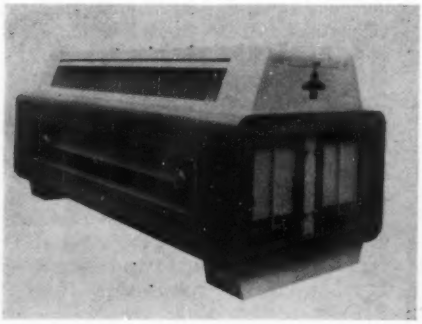
years of dependable background!

was found that there was an affiliated company to MORROS in Mexico City who was producing also outstanding machinery, with years of experience in milling. The ability to use equipment from both associated companies became an important factor for a decision to furnish SMICO's customer with a selection of styles and types of machinery, pneumatics and equipment. Therefore, before making any definite decision, a visit and inspection of the MORROS Company was made in Mexico City, investigating the organization properties and facilities owned by Mr. Abel Morros, brother of Moises Morros, employing 400 to 500 people.

It was a pleasant surprise to find that here in the locality, of SMICO close to the center of the United States, within trucking distance, was an established firm that had manufactured during the past 24 years, a total of over 60 new plants and milling units being furnished to Mexico and South America.

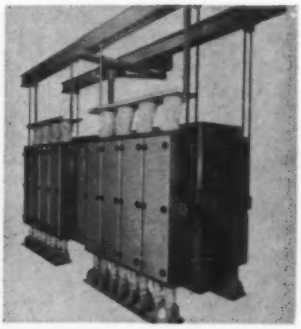
On further analysis SMICO found the MORROS organizations, both the Mexico and Spanish affiliated company, machinery was advanced in design, sanitation features and experience.

Thus financial arrangements have now been completed by SMICO whereby SMICO now is in position to furnish the United States market and markets abroad with a complete new line of SMICO machinery built to the American standards and furnished under the SMICO-MORROS trade name with only the finest in quality and workmanship with U. S. standards to meet the exacting demands of the miller.

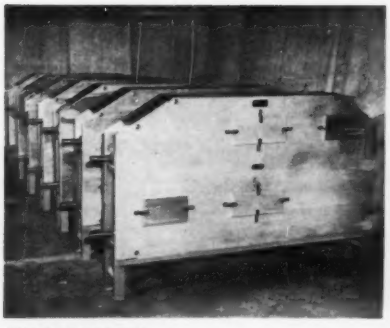


NEW PURIFIER

AUTOMATIC ROLLER MILL INSTALLATION

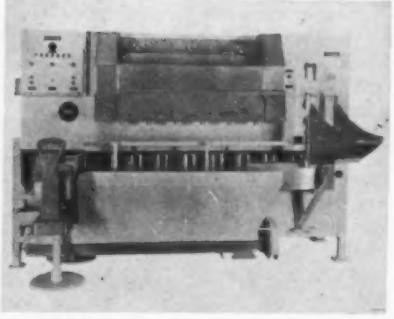


STEEL SIFTER



SMICO AGITATOR

ROLLER MILL INSTALLATION



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SMICO • MORROS

A Milling Technology Feature

Care and Maintenance Of Hammermills

By JOHN J. WOODS

Of all the pieces of equipment in a flour or feed mill the hammermill is one of the easiest to maintain. It has few working parts, and regular, careful checking will preserve this type of grinder for years if given normal care. Mr. Woods is with Woods Feed Mill Supply Co., Jacksonville, Ill. His paper was presented at a district meeting of the Association of Operative Millers in St. Louis.

HERE'S a picture of power: Suspend a battery of hammers on alloy heat-treated rods, keep them flying through an arc at 18,000 to 21,000 feet a minute—that's at a rate of 170 miles an hour—with a crushing force of over 180 million pounds a minute.

Little wonder that it takes plenty of constant power on a hammermill to keep the mill's grinding speed up near the peak motor speed!

With such speed and power, it is only reasonable that the mill operator must regularly check his mill to get the most from his equipment. In considering steps to take in maintaining the grinder one of the first should be "mill and motor alignment."

Mill alignment is not new to mill operators, it simply means the coupling should be checked occasionally to see that motor and mill shaft are in alignment with each other and should be kept in this position unless the equipment has to be removed for repairs. Any good millwright can check alignment. Poor alignment can cause bearing trouble both to electric motor and mill bearings. This is the first step in getting the most out of the hammermill, a solid level foundation and a good alignment on motor and mill shaft.

Bearing Care, Lubrication

Bearing care and proper lubrication of hammermills is a vital part in mill maintenance. This has been a headache over the years, although many plants know more about bearing care today than ever before. The most common cause of a hot bearing in a hammermill is too much grease. For cool, trouble-free bearing operation, the bearing housing or pillow blocks should never contain more than enough grease to fill them above ⅓ full.

Excessive amounts of grease in the bearings cause a churning action, creating excessive friction, producing excess heat and pressure inside the bearing housing. This condition will severely damage the bearings. It also causes the lubricating oils in the grease to separate from the grease base, allowing the oils to flow out around the mill shaft and leaving only the grease base in the bearing. This agent alone is a very poor lubricant.

If the foregoing condition exists, I recommend removal of the drain plugs from the pillow blocks and flushing out of the bearings and cavities with clean, hot (110°) kerosene or naptha. Continue this action until all the old grease has worked out and then refill the bearings with a good quality grease. I would suggest that this be done twice a year for better and longer bearing life.

I have heard arguments both pro and con that bearings on 1,800 rpm. hammermills will out-last and outperform, generally, 3,600 rpm. mill bearings. Bearings on 1,800 rpm. mills are on the average twice as large with more frictional area, therefore this does not always hold true. Both speeds of hammermills can have their difficulties if not properly maintained.

If a bearing is too hot and one cannot hold his hands on the housing, then I suggest that a millwright open up drain plugs and let any excess grease escape from the bearing. Then pour or force in kerosene as mentioned, letting the mill run while doing this; then add a small amount of grease. Many times bearings will lose their heat after draining off excess. If the heat continues, I then suggest changing the hot bearing. It is better to be safe than sorry, as a bearing after being hot too long a period can sometimes break up in a housing, damaging a housing and occasionally a main mill shaft.

In 1951 at a district meeting in St. Joseph, Mo., a company man of the Alemite Corp. gave a paper and an interesting demonstration on the constant mist lubrication of hammermills, roller mills, etc. Although I have seen some installations since this talk, out in the field, I have never followed up this type of installation as carefully as I possibly should.

Hammers Discussed

For years there has been much discussion on hammermill hammers. This is a subject that can—and does—become very controversial, due to the fact that different weights and gauges of hammers perform their function of grinding the grist. Actually, hammers should be known to have a cutting and beating action, not a crushing action, as this could technically be a misnomer.

Some mill operators prefer a heavy bar hammer and continue to use the hammer as recommended by the hammermill manufacturer. Others like to experiment on different types of hammers, using thinner gauges from 1/16 in. up through ½ in.

In my humble opinion, after making a few hundred mill tests the past 25 years of selling and servicing different makes of hammermills, I have arrived at the conclusion that on fibrous materials, such as mill run screenings of various types, the thinner gauges of hammers will outperform heavy hammers as to uniformity of grind, cost per ton of hammer wear, less load on the mill rotor, using less power.

Hammermill spacers must be used with thinner gauges for hammer stability. Where a ½ in. hammer is used I would suggest two ¼ in. hammers to be used with a thin steel washer between the two hammers. The more cutting edges one has in his mill, on screenings, the more mill capacity and the better appearance of the grind.

This usually works out well up to a point.

On mill screenings and bran, I would suggest either a ⅛ in., 3/16 in. or a ¼ in. hammer will work out well on most hammermills. I realize that my comments on hammers are one man's opinion, but I'm sincere in these remarks on what I have observed the past years.

What of Hard Facing?

Does it pay to build up hammers by hard facing? This question has been asked me many times. There are a number of methods of hard facing and several types of hard facing rods, carbon tips, etc.

I personally like the use of No. 30 Down Boron Rod that stays better with the hammer once it is applied to the hammer. One does not have to be lavish on applying the rod, since this material is expensive as to labor and especially the cost of the rod; the corners of each hammer an inch down from the top, on the side, and an inch across each end, usually suffice in most cases.

The cost of applying hard facing runs about 8¢ a running inch for ⅛ in. hammers through 12¢ per inch for ½ in.

Yes, I do believe that it pays to hard face hammers on screenings and bran and certain other feedstuffs. However, I suggest that the hard facing be applied on "new" hammers only. I'm thinking about the cost of the hard facing material in relation to the additional wear received on worn hammers, after the hard facing is accomplished.

Where hard facing is first done on new hammers, it is after this that hammers are then heat treated. The heat treatment is between 50 and 5 Rockwell Test for hardness. The ideal heat treatment we work for is a mild center and a hard case. This gives ductility and toughness without brittleness, which can cause breakage sometimes under severe stress.

Hammermill screens are an important repair, or rather replacement item, to the operation of the mill.

The requirements of a good mill screen are at least three-fold:

First, the mill screen should have staggered centers. Having centers punched will give more holes per square inch, hence more mill capacity.

Second, thickness of gauge can be an important item; a heavy gauge will increase life of the screen, and will sometimes give an opportunity to re-roll mill screens. That is, if these screens are re-rolled before the original wear has gone too far. It does not pay to re-roll thin gauges of screen stock, however.

Manganese Screen

A high carbon manganese screen makes for better perforated mill stock, as this type of metal wear hardens in the mill. The longer the screen is used in the hammermill the tougher it becomes. Manganese steel is used extensively in heavy rock mills and crushers. You'll receive more screen wear for your money with the high carbon manganese screen stock.

Third, mill screens should be clean or clear punched and the punch should not be done through scale that adheres to steel. Screen perforating should be uniform without misses between holes.

Comments on Mill Discs

All I have to comment on discs is that they should be lined straight in the mill and, where the hammer rods enter the disc holes, there should never be more than a 3/32 in. gap. The rods should fit in these holes snugly. Hammers, however, should fit freely on the rods so they can swing easily, but not loosely.

There is not a lot to comment on fans; only that they should be inspected regularly as part of hammermill maintenance. Screenings and feedstuffs generally put a considerable amount of wear on fans. There has been some fan replacements for negative air systems, but a company can afford to buy a lot of fans over the years in comparison with the "price" and "power cost" of pneumatic systems on hammermills. «

MISS KANSAS CENTENNIAL of 1961 is the title carried by vivacious Gayla Leigh Shoemake, a junior in sociology at Kansas State University, Manhattan. The El Dorado miss won the title, as well as $1,000 scholarship, in the sixth annual Miss Kansas scholarship pageant at Pratt last June.

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Studies of Size Classification Indices

Part II: The Critical Particle Size

By REZSOE GRACZA

INTRODUCTION

IN the first part of the studies (3), efficiency concepts of size classification procedures were analyzed and compared with the use of a model system illustrating efficiency values as function of particle size of a single size classification step. Since proposals for the determination of critical particle size may involve the efficiency of classification, efficiency concepts such as presented in the first part may be considered prerequisites for understanding the discussion in the second part about the critical particle size of a size classification procedure.

The particle size at which air classifiers operate recently became important and of practical interest because of the application in the flour milling field (4). A need arose with this development for a term to express the size at which a single classification step was made analogous to the value designated by the sieve opening in screening operations. Like any analogy, this is also imperfect.

While in the screening operation the physical limitations of the machinery such as the sieve opening could designate the size characterizing the operation of this size grader, in other size grading machines such as the air classifiers using other grading principles, no such physical limitations of the machinery can be found.

The absence of such physical limitations in certain machinery necessitated the adoption of a new system to determine the size of the grading operation. This system, instead of the physical limitations in the machinery, resorts to the particle size distribution curves of the coarse and fine fractions (or overs and thrus) of a size classification procedure. This means, of course, that the critical particle size has to be expressed in the size unit used in the determination of the size distribution curves of the coarse and fine fractions. The system also has the advantage that it can be used at any measurable particle size of the products including the subsieve sizes.

One past suggestion defines critical particle size as the particle size of the parent stock, at which the selected "efficiency value is maximum" (2). Of course, this definition is only applicable to cases in which the efficiency curves plotted against the particle size have maxima such as the average efficiency (3, 6), Newton (3, 5) efficiency and sharpness (3). This consideration would select the critical particle size on the basis of the minimum amount of imperfection as defined and determined by specific methods.

A broader or more academic type of definition denotes the critical particle size as the particle size of the parent stock which has "equal probability" of entering either the fine or the coarse fraction (2).

Seven Methods for Determining Critical Particle Size

The following is a discussion on how critical particle size may be determined either on the basis of maximum efficiency value or equal probability. To facilitate comprehension, mathematical symbols are introduced as explained in the glossary and Table 1 in addition to those already used in the first part of the studies (3).

The absence of physical limitations such as the sieve opening in certain size graders, for example, air classifiers, necessitated the adoption of a new system for determining the critical particle size at which size graders operate. This system resorts to the particle size distribution curves of the products rather than to the physical limitations of the processing machinery. Obviously, it has the advantage of being applicable at any measurable particle size of the products including the "subsieve sizes." The unit of its measurement is the kind of size in which the particle size distribution curves of the products were expressed. Seven methods using three different principles of determining critical particle size of a size classification procedure are presented and analyzed. The seven methods were applied to sixteen sample pairs (coarse and fine fractions) of different air classification steps performed on a soft wheat flour. Correlation coefficients and regression equations are presented to compare the discussed seven methods of determining critical particle size and efficiency measures at corresponding size based on the results of sixteen sample pairs of soft wheat flour in the subsieve size range. Mr. Gracza is in cereal and grain research with the Pillsbury Co. ***Mr. Gracza wishes to express his appreciation to John I. Thornby, Pillsbury's department of experimental design and mathematical research, who made the statistical calculations.***

Expression 6 is the well known percent finer than size versus particle size curve of the reconstructed parent stock. Expression 7 is the percent per micron versus particle size curve of the reconstructed parent stock, otherwise known as the frequency curve. Expression 8 is the percent finer than size curve of the coarse fraction adjusted by the percentage of the coarse fraction. Expression 9 is the percent finer curve of the fine fraction adjusted by the percentage of the fine fraction. Expression 10 is the size frequency curve of the coarse fraction adjusted by its yield, and Expression 11 is the same but for the fine fraction.

Method 1: The execution of this method involves the size frequency curves of the reconstructed parent, the adjusted coarse and adjusted fine fractions. The intersection of the adjusted coarse and adjusted fine curves, projected to the abscissa, denotes a particle size which may be called the critical particle size (see Fig. 1). At this size:

$$(1 - z)\frac{dy_c}{dx} = z\frac{dy_f}{dx} \qquad \ldots (12)$$

In the infinitesimally narrow particle size range of "dx" in Expression 12, the same weight (or number) of particles can be found in the coarse fraction as in the fine fraction, namely, one half of that available in the reconstructed parent stock. Restated, in n particles of parent flour having x critical particle size, n/2 were collected in the fine fraction and n/2 were collected in the coarse fraction.

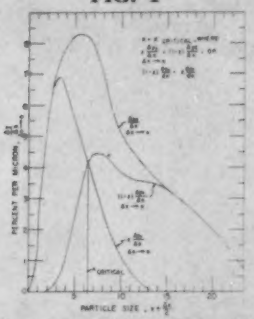
If it is satisfactory to measure the point of equal probability by distributing the n particles of x size in equal share into the fractions, Expression 12 represents the criterion for the definition of critical particle size by the adjusted frequency curves of the fractions.

Method 2: Critical particle size determinations using the same principle may be made also by other approaches. In case a rapid calculation is required without the efficiency of classification, the semi-graphical differentiation of the adjusted curves and the apportionment of these in the corresponding particle size ranges may be useful. Plotting the proportion against particle size, as shown in Fig. 2, at the value of

$$\frac{(1 - z)\frac{\Delta y_c}{\Delta x}}{z\frac{\Delta y_f}{\Delta x}} = 1 \qquad \ldots (13)$$

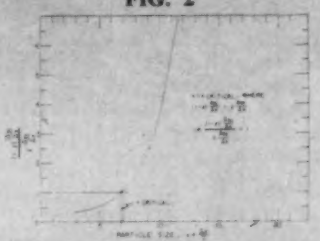
the critical particle size may be read on the abscissa.

FIG. 1



DETERMINATION of critical particle size by the adjusted frequency curves of the coarse and fine fractions using data of a hypothetical air classification step. Method 1.

FIG. 2



DETERMINATION of critical particle size by semi-graphical differentiation of the adjusted percent finer curves of the coarse and fine fractions using data of a hypothetical air classification step. Method 2.

With experience at three to four arbitrary x values, the ratio of one may be approximated and, by trial and error, the critical particle size may be determined.

Methods 3 and 4: Figs. 3 and 4

GLOSSARY OF SYMBOLS*

x	= *Arbitrary particle size.*
y_p	= *Percent finer value of the particle size distribution curve of the parent stock at x arbitrary particle size.*
y_c	= *Percent finer value of the particle size distribution curve of the coarse fraction at x arbitrary particle size.*
y_f	= *Percent finer value of the particle size distribution curve of the fine fraction at x arbitrary particle size.*
$\frac{dy_p}{dx} = \tan a_p$ (a = Alpha)	= *Percent per micron value of the particle size frequency curve of the parent stock at x arbitrary particle size.*
$\frac{dy_c}{dx} = \tan a_c$ (a = Alpha)	= *Percent per micron value of the particle size frequency curve of the coarse fraction at x arbitrary particle size.*
$\frac{dy_f}{dx} = \tan a_f$ (a = Alpha)	= *Percent per micron value of the particle size frequency curve of the fine fraction at x arbitrary particle size.*
z	= *Yield of fine fraction expressed as fraction of the parent stock.*
$(1-z)$	= *Yield of coarse fraction expressed as fraction of the parent stock.*
$z(100-y_f)$	= *Proportionate oversize in the fine fraction.*
$(1-z)\,y_c$	= *Proportionate undersize in the coarse fraction.*

*Subscripts p, c and f are referring to values of parent, coarse and fine fractions, respectively.

*Designation of the equations is following the numbering system of the previous article (3), which appeared in THE MILLER of Jan. 9, page 32.

present graphical methods for determining critical particle size based on the same principle as Methods 1 and 2 using the adjusted percent finer than size versus particle size curves instead of the size frequency curves. The respective maximum or minimum ordinate difference between the adjusted coarse and adjusted fine curves marks the critical particle size on the abscissa for which:

$$(i\text{-}z)\tan\alpha_{\text{coarse}} = z\tan\alpha_{\text{fine}} \quad \ldots (14)$$

The last expression, while it is only another form of equation 12, may be considered as the criterion of the maximum (method 3) or minimum (method 4) ordinate methods between the adjusted percent finer curves of the fractions.

Method 5: If it is desirable to measure the equal chances for critical particle size in terms of distributing the factors of imperfection, namely, the adjusted oversize and adjusted undersize in an equal share into the fine and coarse fractions, a simple method may be used to determine critical particle size. Calculating and plotting the percent finer curve of the reconstructed parent stock, the

$$y_p = 100z \quad \ldots (15)$$

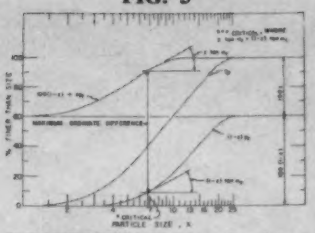
ordinate and abscissa designates the particle size which distributes the sum of adjusted oversize and adjusted undersize in equal share into the respective fractions. The share is equal since from the amount of the reconstructed parent available under the particle size defined by the yield of the fine fraction, only a portion, the adjusted oversize at the same particle size, was not collected in the fine fraction. Consequently, the same amount must occur in the coarse fraction under the same particle size as adjusted undersize. Fig. 5 demonstrates this critical particle size determination method by

TABLE I

Data of a Hypothetical Sample Pair of Coarse (60%) and Fine (40%) Fractions and Those of Their Reconstructed Parent (100%) Used for Example in the Text

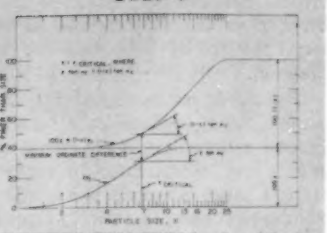
		x_0	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8
	Particle Size: x_i	0	2	4	7	10	13	16	20	25
	Size Range: $\Delta x_i = x_{i+1} - x_i$	2	2	3	3	3	3	4	5	
	Median Size in each Size Range: $x_i + \frac{\Delta x_i}{2}$	1	3	5.5	8.5	11.5	14.5	18.0	22.5	
Coarse Fraction	% Finer Than x_i Size: y_c		0.0	1.0	16.5	38.0	57.0	74.0	91.0	100.0
	% in the Δx_i Size Range: Δy_c	0.0	1.0	15.5	21.5	19.0	17.0	17.0	9.0	
	Adjusted % in Δx_i Size Range: $(1 - z)\,\Delta y_c$	0.0	0.6	9.3	12.9	11.4	10.2	10.2	5.4	
	Adjusted % Finer Than x_i Size: $(1 - z)\,y_c$		0.0	0.6	9.9	22.8	34.2	44.4	54.6	60.0
	Adjusted %/Micron Value at Median Size: $(1 - z)\frac{\Delta y_c}{\Delta x}$	0.0	0.3	3.1	4.3	3.8	3.4	2.6	1.1	
Fine Fraction	% Finer Than x_i Size: y_f		7.0	41.0	79.0	96.0	100.0	--	--	--
	% in Δx_i Size Range: Δy_f	7.0	34.0	38.0	17.0	4.0	--	--	--	
	Adjusted % in Δx_i Size Range: $z\,\Delta y_f$	2.8	13.6	15.2	6.8	1.6	--	--	--	
	Adjusted % Finer Than x_i Size: $z\,y_f$		2.8	16.4	31.6	38.4	40.0	--	--	--
	Adjusted %/Micron Value at Median Size: $z\frac{\Delta y_f}{\Delta x}$	1.4	6.8	5.1	2.3	0.5	--	--	--	
Reconstructed Parent	% in Δx_i Size Range: $\Delta y_p = (1 - z)\,\Delta y_c + z\Delta y_f$	2.8	14.2	24.5	19.7	13.0	10.2	10.2	5.4	
	% Finer Than x_i Size: y_p		2.8	17.0	41.5	61.2	74.2	84.4	94.6	100.0
	$(1 - z)\frac{\Delta y_c}{\Delta x} \Big/ z\cdot\frac{\Delta y_f}{\Delta x}$	0	0.0	0.6	1.9	7.6	∞	∞	∞	
	$\frac{\text{Adjusted Oversize in Fine}}{\text{Adjusted Undersize in Coarse}} = \frac{z\,(100-y_f)}{(1 - z)\,y_c}$	∞	39.3	0.9	0.1	0	--	--	--	

FIG. 3



DETERMINATION of critical particle size by maximum ordinate difference between adjusted percent finer curves of the coarse and fine fractions using data of a hypothetical air classification step. Method 3.

FIG. 4



DETERMINATION of critical particle size by minimum ordinate difference between adjusted percent finer curves of the coarse and fine fractions using data of a hypothetical air classification step. Method 4.

the reconstructed parent stock and yield of the fractions.

Method 6: Determination of critical particle size based on the principle used in Method 5 may be done by plotting the adjusted coarse and fine curves and the proportion of the adjusted oversize and undersize values at

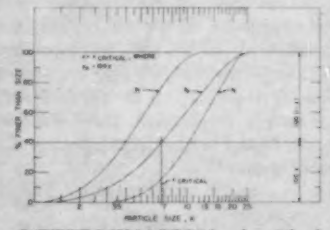
$$\frac{z\,(100 - y_f)}{(1 - z)\,y_c} = 1 \qquad \ldots (16)$$

the critical particle size can be obtained. Fig. 6 demonstrates this critical particle size determination by equal distribution of the adjusted oversize and undersize.

Method 7: There are a number of graphical or semi-graphical methods in use which, though arbitrary, attempt to apply either the principle of maximum efficiency or the principle of equal chances for determining the critical particle size. Fig. 7 presents one of these methods, where the ordinate difference between coarse and fine percent finer curves is considered as a general measure of efficiency. The particle size belonging to the maximum efficiency (sharpness) is considered as the critical particle size (critical cut).

$$\frac{dy_f}{dx} = \frac{dy_c}{dx} \qquad \ldots (17)$$

FIG. 5



DETERMINATION of critical particle size by the reconstructed parent stock and yield of the fractions using data of a hypothetical air classification step. Method 5.

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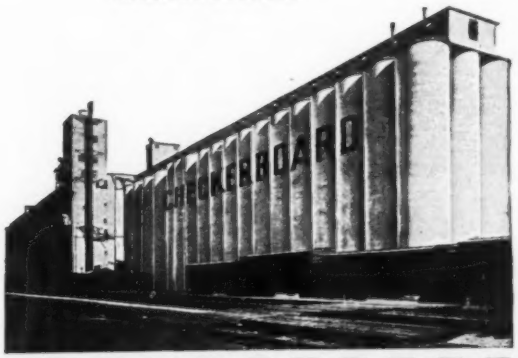

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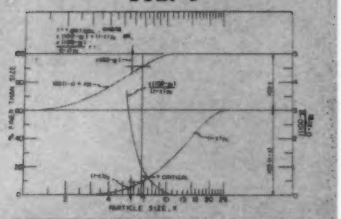
FIG. 6



DETERMINATION of critical particle size by equal distribution of the proportionate oversize and undersize using data of a hypothetical air classification step. Method 6.

The last equation mathematically defines the critical particle size by the arbitrary maximum ordinate method using symbols as explained in the glossary.

EXPERIMENTS

A short study was undertaken to compare the usefulness of the seven methods to determine critical particle size using separated fractions of a short extraction flour milled commercially out of 100% Ohio soft red winter wheat. The results are presented in Table 2.

The first set of sample pairs of A, B, C and D was produced by subjecting the parent flour to air classification at increasing critical particle size in a repeating procedure, where the coarse fraction of the first step became the feed material for the second step and so on through the step which produced fraction D.

The second set of sample pairs E, F, G and H was produced by subjecting the parent flour to identical air classification steps at increasing critical particle size, however in individual process steps where, in each step, the parent flour was the feed material.

The third and the fourth set of the sample pairs processed a specially ground counterpart of the commercial soft wheat parent flour in repeating (I, J, K and L sample pairs) and individual procedures (M, N, O and P sample pairs), respectively.

The particle size determinations of the samples were run by a modified rapid centrifuge sedimentation method (7) averaging the data of two runs. The critical particle size was obtained by Methods 1 through 7 as discussed in the former chapter. At the critical particle size, the average efficiency was determined except in Method 7 where the sharpness figure was used.

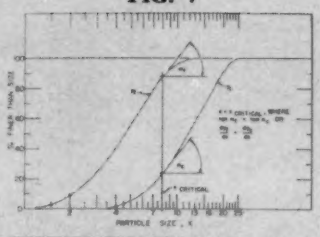
Table 2 presents the critical particle size and efficiencies calculated by the seven methods on sixteen sample pairs covering essentially the subsieve size range.

Results of Table 2 were used to calculate the correlation coefficients and regression equations of the critical particle sizes and corresponding efficiency measures. The calculated data were assembled in Table 3 serving mainly to compare three different concepts and seven different determination methods of the critical particle size as applied to a particular flour in the subsieve size range.

DISCUSSION

Academic opinion may vary as to what the accurate (academically proper) definition of efficiency in a size classification step (including air classification and screening operation) should be.

FIG. 7



DETERMINATION of critical particle size by maximum ordinate difference (sharpness) between the percent finer curves of the coarse and fine fractions using data of a hypothetical air classification step. Method 7.

It has been shown in this study that there are different principles and methods available to determine the particle size at which a size grader operates which make use of the particle size distribution curves of the coarse and fine fractions.

The principles of equal probability for the critical particle size to enter the fine or the coarse fraction (Methods 1, 2, 3 and 4) is academically very appealing. The precision of its four presented determination methods, however, is rather poor, especially in extreme cases, such as when the yield of fine fraction is less than 10% or more than 90%. These methods place a great emphasis on very precise size distribution data.

The principle of equal distribution of the amount (weight or volume) of imperfection into the coarse and fine

TABLE II

Comparison of Critical Particle Size Data as Determined on 16 Sample Pairs of Air Classified Flours by Seven Different Methods as Follows:

Critical particle size by:
1. Adjusted frequency curves of the fractions.
2. Semi-graphical differentiation of adjusted per cent finer curves of the fractions.
3. Maximum ordinate method between adjusted per cent finer curves of the fractions.
4. Minimum ordinate method between adjusted per cent finer curves of the fractions.
5. The per cent finer curve of the reconstituted parent stock and yield of the fractions.
6. Equal distribution of adjusted oversize and undersize into the fractions.
7. Maximum ordinate method between the per cent finer curves of the fractions.

Ident. of Sample Pairs	(1) Crit. Part. Size	(1) Average Effi-ciency %	(2) Crit. Part. Size	(2) Average Effi-ciency %	(3) Crit. Part. Size	(3) Average Effi-ciency %	(4) Crit. Part. Size	(4) Average Effi-ciency %	(5) Crit. Part. Size	(5) Average Effi-ciency %	(6) Crit. Part. Size	(6) Average Effi-ciency %	(7) Crit. Cut	(7) Sharp-ness %
A	6.8	94.0	3.3	95.0	5.7	94.5	5.0	94.5	6.1	94.5	6.1	94.4	9.8	83
B	10.8	89.0	11.0	89.0	10.4	89.0	10.2	89.5	12.3	88.5	12.5	88.5	16.3	67
C	13.0*	83.5	10.2*	84.0	11.0	84.0	11.5	84.5	16.0	82.5	16.5	81.0	23.4	42
D	32.4	76.0	32.5	76.0	32.5	76.0	32.5	75.8	27.0	72.0	27.2	74.0	32.0	50
E	4.8	94.5	6.0	95.0	4.5	96.0	4.6	95.5	7.5	94.5	6.2	95.0	9.7	85
F	12.0	92.0	10.5	92.8	11.2	92.0	10.9	92.5	11.3	92.5	11.5	92.0	14.8	78
G	15.2	81.5	15.2	82.0	14.5	82.0	14.4	81.5	16.6	81.0	16.7	81.5	24.8	57
H	32.5	76.0	33.5	76.0	33.4	76.0	34.0	76.0	25.5	73.0	26.0	73.0	30.0	48
I	5.1*	90.5	1.0*	92.2	2.5*	92.0	2.5*	92.0	5.6	90.0	5.5	90.5	9.4	73
J	11.7	84.5	11.5	84.5	12.0	84.0	11.7	84.0	12.6	84.0	13.0	84.0	15.1	58
K	13.0	73.5	12.5	73.5	13.5	73.5	13.0	73.5	17.7	72.0	17.8	71.0	20.0	29
L	36.8	72.5	50.0*	72.5	36.0*	72.5	36.0	72.0	26.2	65.0	26.5	65.2	23.0	16
M	5.2*	92.0	1.8*	92.7	2.5*	92.5	2.5*	92.5	5.6	91.5	5.6	91.5	9.4	75
N	11.8	84.0	10.5	83.5	11.4	84.0	11.1	84.0	11.8	83.5	12.5	84.0	13.2	65
O	17.5	74.5	18.0	74.5	18.0	74.5	17.5	74.0	18.4	74.0	18.5	74.0	16.5	50
P	35.0	82.5	34.8	82.5	34.2	82.5	34.5	82.0	23.2	77.0	23.8	77.5	17.5	37

*Data by interpolation or extrapolation in area where the graphical method may have introduced considerable error.

TABLE III

Correlation Coefficients* and Regression Equations Comparing Critical Particle Sizes and Efficiency Measures at Corresponding Critical Particle Sizes as Obtained from Results on Table II**

Methods	Correlation Coefficient Of Critical	Regression Equation Particle Size (x)	Correlation Coefficient Of Efficiency	Regression Equation Measure (q)
1 vs. 2	.98	$x_1 = 3.0 + 0.83\ x_2$	1.00	$q_1 = 1.4 + 0.98\ q_2$
1 vs. 3	1.00	$x_1 = 1.7 + 0.94\ x_3$	1.00	$q_1 = 1.4 + 0.98\ q_3$
1 vs. 4	1.00	$x_1 = 2.0 + 0.93\ x_4$	1.00	$q_1 = 3.2 + 0.96\ q_4$
1 vs. 5	.94	$x_1 = -2.9 + 1.28\ x_5$	.98	$q_1 = 16.4 + 0.82\ q_5$
1 vs. 6	.94	$x_1 = -2.6 + 1.25\ x_6$	.98	$q_1 = 16.3 + 0.82\ q_6$
1 vs. 7	.74	$x_1 = -8.3 + 1.40\ x_7$	.89	$q_1 = 61.5 + 0.39\ q_7$
2 vs. 3	.97	$x_2 = -1.7 + 1.14\ x_3$	1.00	$q_2 = 0.1 + 1.00\ q_3$
2 vs. 4	.97	$x_2 = -1.2 + 1.12\ x_4$	1.00	$q_2 = 1.8 + 0.98\ q_4$
2 vs. 5	.92	$x_2 = -7.2 + 1.55\ x_5$	.98	$q_2 = 15.0 + 0.84\ q_5$
2 vs. 6	.92	$x_2 = -6.8 + 1.51\ x_6$	.98	$q_2 = 14.9 + 0.84\ q_6$
2 vs. 7	.70	$x_2 = -13.7 + 1.69\ x_7$	.88	$q_2 = 61.2 + 0.40\ q_7$
3 vs. 4	1.00	$x_3 = .2 + .99\ x_4$	1.00	$q_3 = 1.8 + 0.98\ q_4$
3 vs. 5	.96	$x_3 = -4.8 + 1.36\ x_5$	.98	$q_3 = 15.0 + 0.84\ q_5$
3 vs. 6	.96	$x_3 = -4.6 + 1.33\ x_6$	.98	$q_3 = 14.9 + 0.84\ q_6$
3 vs. 7	.76	$x_3 = -10.5 + 1.48\ x_7$	.89	$q_3 = 61.2 + 0.40\ q_7$
4 vs. 5	.96	$x_4 = -5.2 + 1.38\ x_5$	.98	$q_4 = 13.3 + 0.86\ q_5$
4 vs. 6	.96	$x_4 = -5.0 + 1.35\ x_6$	.98	$q_4 = 13.2 + 0.86\ q_6$
4 vs. 7	.76	$x_4 = -11.2 + 1.51\ x_7$	.88	$q_4 = 60.6 + 0.41\ q_7$
5 vs. 6	1.00	$x_5 = 0.3 + 0.97\ x_6$	1.00	$q_5 = .1 + 1.00\ q_6$
5 vs. 7	.88	$x_5 = -4.2 + 1.09\ x_7$	.92	$q_5 = 54.8 + 0.48\ q_7$
6 vs. 7	.88	$x_6 = -4.6 + 1.12\ x_7$	.94	$q_6 = 54.9 + 0.48\ q_7$

*The standard product moment calculation method was used in obtaining the correlation coefficients.

**In the calculation of regression equations, the method was used as described by Abraham Wald, Annals of Mathematical Statistics. Volume II. pp. 284-300 (1940), as both variables are subject to errors of measurement.

fractions (Methods 5 and 6) has a less appealing principle. It may be used advantageously where precision of the critical particle size determinations are required.

Critical particle size determination using the maximum efficiency measure of sharpness was found advantageous for its speed, precision and independence from the yield of the products. Other methods which involve plotting efficiency against particle size and which include the yield factors of the fractions may produce a condition where the efficiency versus particle size curves have no maxima. This may occur if a large amount of undersize is left in the coarse fraction. Such a situation is aggravated if the yield of the fine fraction is also low. In such case, no determination of critical particle size is possible by these methods.

While the coarse and fine recovery curves (1, 3) obviously do not have maxima, it may be interesting to note that they meet at a particle size at which the efficiency of fine recovery equals the efficiency of coarse recovery.

$$z\ \frac{y_f}{y_p} = (1 - z)\ \frac{100 - y_c}{100 - y_p} \quad . \ . \ . \quad (18)$$

Such a particle size defines equal chances by the degree of proper collection in the fine and coarse fractions.

Each of the discussed methods for determining critical particle size has certain advantages and disadvantages which must be necessarily weighed in terms of required interpretation, the adaptability of the size distribution data to the evaluation system, speed or ease of making the calculation and perhaps whether yield of products is important. Depending on requirements, one of the discussed methods may be used to best advantage in comparative studies of process and/or machinery.

Comparison Studies

A note is here made that studies comparing size classification machinery using the efficiency versus particle size curve of a single step operation convey little information. Selecting a single parameter from an efficiency versus particle size curve of a single operation step such as the one belonging to the critical particle size may be satisfactory to characterize efficiency of that specific operation step. Since it is known that a size grading machine can be adjusted to operate at different sizes, the efficiency versus critical particle size curve will convey useful information characterizing an air classifier by a series of air classification steps. «

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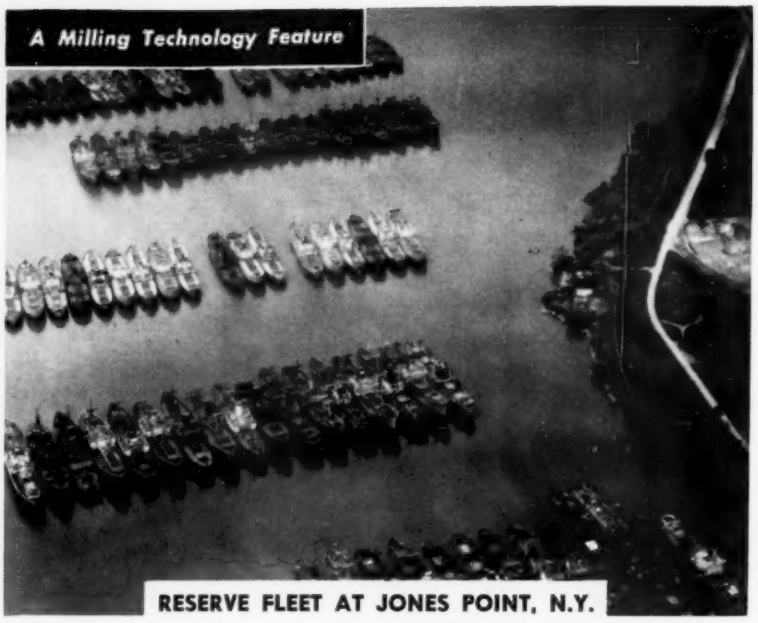
'Unconventional' — that word best describes some of the grain storage facilities utilized by the U.S. Department of Agriculture in recent years to handle its mountainous surpluses. The Mothball Fleets on both coasts used for wheat storage probably rate top priority in the unconventional category, for they present special problems of handling, care and treatment for infestations. USDA policy is to utilize commercial storage facilities to store government-owned grain whenever possible. However, when such is not available, emergency storage must be employed. Storage of wheat in the Mothball Fleets of the Hudson and James rivers in the East and at Olympia and Astoria on the West Coast present one of the interesting experiments in this field. History of grain storage in Liberty ships is of consuming interest to all who have been charged with care and preservation of grain in surplus storage where adequate means of handling to keep it in condition were entirely lacking. The accompanying article by Dr. Cotton pertains to wheat storage in the reserve fleets anchored in the Hudson River off Jones Point and in the James River near Fort Eustis, Va.

A Milling Technology Feature



RESERVE FLEET AT JONES POINT, N.Y.

Photo Courtesy Maritime Administration

Wheat Storage In the *Mothball Fleet*

By RICHARD T. COTTON

THE year 1949 is a red letter one for the grain storage industry and the U.S. Department of Agriculture—it marks the beginning of ship storage of wheat on an experimental scale. From that year onward, and probably for a long period in the future, those most vitally involved have been, and will be, concerned with one of the most significant experiments of the whole era of super-abunance.

Richard T. Cotton

It was the year 1949 in which the lower holds of Liberty ships were completely filled with grain so that inspections and treatments were limited by comparatively small size of the hatch opening between lower holds and the 'tween decks. It was soon found that adequate inspection of grain in all parts of a hold was impossible under these conditions. Fumigants applied through the hatch opening failed to diffuse throughout the hold and did not give satisfactory kill of insect infestations. Eventually a sufficient quantity of grain was removed from the holds of each ship to level off the grain 4 ft. below the 'tween decks. This made it possible to take inspection samples from all parts of the cargoes and allowed fumigants to be applied uniformly over the surface of the grain. All grain stored in Liberty ships in 1949 and 1950 was loaded out in 1950 to 1951 to fill export orders.

Data supplied by the Evanston (Ill.) Commodity Office of the Commodity Stabilization Service.

Set Aside for Storage

Fifty ships of the Hudson River Reserve fleet were set aside for the storage of wheat in 1953. Later in the year 50 ships of the James River Reserve fleet were similarly assigned for wheat storage, and still later an additional 25 ships were added to the Hudson River grain fleet. In all, 28 million bushels of wheat were stored in 1953. Since then, 85 additional ships were added to the East Coast grain fleets, making a total of 210 ships. During the period from March 1953 to June 1959 some ships were loaded

and unloaded several times. The average storage period for the 95,108,179 bu. has been 26.3 mos., although one cargo of No. 1 wheat was stored for nearly six years.

Responsibility for maintenance of the ship-stored wheat was assigned to the Evanston (Ill.) Commodity Stabilization Service Commodity Office. Actual care of the wheat was given to a resident maintenance crew established at each fleet and headed by a former USDA licensed grain inspector. The crews, comprised of the fleet supervisor, his assistant, clerical employees and grain examiners, numbered about one man per million bushels. At least once each 30 days, and often every two or three weeks, grain in each hold of every ship was inspected for condition. Grain temperatures were taken and probe samples examined for possible heating, mustiness, infestation or deterioration. Semi-annual inspections also were made by licensed grain inspectors as a double check on condition. For a portion of the time an entomologist was assigned to the fleet to make observations on effectiveness of the various insect control measures used.

Each Liberty ship was loaded with approximately 225,000 bu., stored in the five lower holds. These holds varied in size. Three of the holds were loaded with approximately 40,000 bu., one with 70,000 bu. and one with approximately 25,000 bu. The problem of maintaining this grain in good condition for an indefinite period can be imagined when it is realized that the grain laid in dead storage with no chance of turning, mixing or blending, and with no opportunity for taking samples of grain moving from one bin to another as is the case with elevator stored grain.

Rain or snow entering the storage holds through vents, hatch covers or deck leaks—through hatch covers and doors inadvertently left open or damaged by wind—was a constant problem. High humidity of the storage area coupled with the occurence of seepage also contributed to the threat against grain quality. To utilize to the greatest extent the cooling effect of river water surrounding the hull, and to facilitate inspection and treatment of the grain, wheat was stored only in the lower holds. The 'tween deck holds were left empty.

Quality Maintained

Maintenance of quality of grain held in dead storage is simplified if it can be kept uniformly cool and dry. Temperature of the wheat after summer loading was seldom below 75°F. and often as high as 85° to 95°F. in many of the holds. In wheat stored in ships the outer layers tend to cool more rapidly than wheat in central areas of the holds if air above the wheat is cold and water around the ship is also cold. Under these conditions convection currents are set up and migration of water vapor to the cooler grain occurs. Moisture condenses in the cool grain with danger of spoilage. To avoid spoilage under these conditions and to make it possible to lower both the temperature and moisture content of grain it was decided to provide aeration equipment for the holds of each ship. With assistance of USDA agrciultural engineers such a system was installed in 1953.

In general, each ship was equipped with two lines of 8-in. diameter, perforated ducts on each hold bottom. The lines were arranged 8 ft. apart running lengthwise of the ship. A 12-in. solid wall supply pipe connected a fan to the perforated ducts. The system was arranged so that the fan pulled air from the hold overspace down through the wheat and exhausted it to the atmosphere. One edge of each weather hatch cover was opened to allow outside air to enter the hold over space. In the case of ships already loaded with grain, it was necessary to force ducts vertically down through the wheat and then remove wheat from inside the ducts. From two to four perforated ducts per hold were used. They extended from the 5th to the 15th foot depth below the surface of the wheat. Both systems worked efficiently.

During the first fall and winter most of the fans were operated for a total of 800 to 1,000 hrs. It was necessary to use care in selecting the period of aeration so that temperature and moisture content of the grain would not be inadvertently raised. Eventually a fan control system was designed and installed to automatically select fan operating time. Settings with upper

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'Floating' Storage Problem (continued)

limits of air temperature and relative humidity were selected allowing fan operation only when settings were not exceeded by outdoor temperature and humidity.

By April of 1954, temperature of the wheat in most ships was lowered sufficiently for safe summer storage. Much of the wheat had temperatures below 45°F. in the Hudson River fleet and below 50°F. in the James River fleet. In succeeding winters wheat in the Hudson River fleet reached temperatures as low as 20°F. Because of milder winters, wheat in the James River fleet seldom reached temperatures lower than 40°F. The effect of aeration on grain moisture was such that it was not unusual for grain in storage for one or two fan operation seasons to discharge a full percentage lower in moisture than when loaded.

Insect Control

The problem of controlling insects in ship-stored wheat is similar to that encountered with grain in all types of dead storage. Of the numerous species of grain-infesting insects causing trouble, the Indian meal moth was the worst, followed by the granary weevil, rice weevil, floor beetle, saw-toothed grain beetle, lesser grain borer, flat grain beetle, Dermestids and psocids.

All grain loaded in 1953 was treated with a 3 to 1 mixture of ethylene dichloride and carbon tetrachloride at the rate of 5 gallons per 1,000 bu. applied with a power sprayer uniformly over the surface of the grain. This treatment was effective but expensive. In 1954 tests were conducted with methyl bromide used at the rate of 2 lb. per 1,000 sq. ft. By modifying the aeration system present in each hold the methyl bromide released above the grain was drawn down through the grain, exhausted back into the 'tween deck hold and thence through the open hatchway into the lower hold where it was again drawn through the grain. By circulating the fumigant, diffusion throughout the grain mass was obtained. Satisfactory results were obtained with a considerable saving in cost.

Although methyl bromide proved an effective fumigant, it could not be used continuously for repeated fumigations owing to danger of exceeding the residual inorganic bromide tolerance of 50 ppm. In 1958 all cargoes loaded that year were fumigated on arrival with a mixture containing 60% carbon tetrachloride, 35% ethylene dichloride and 5% ethylene dibromide at the rate of 3 gal. per 1,000 bu. grain. This fumigant proved highly effective at that dosage. The aeration fans were often reversed and operated for a few minutes at 24 or 48-hr. intervals after fumigant was applied to raise the fumigant vapors back to the surface grain where heaviest insect infestation usually occurred.

Effect of Aeration

As a result of the aeration program, cooling of grain during the fall and winter months gradually eliminated most of the insect population. This is as would be expected since, as noted by Cotton et al (1953), when farm stored grain temperatures drop to a temperature of 50°F. or lower during the winter, grain-infesting insects stop reproducing and feeding so that by spring the live insect population is reduced close to the vanishing point. In ship-stored wheat the top few feet of grain respond to outside summer temperatures and surviving or migrating insects start infestations that are confined mostly to the top 5 or 10 ft.

It seemed wasteful to fumigate entire ship loads of grain merely to control surface infestations. In 1956 a pyrethrum spray was applied to the grain surfaces as a supplement to fumigation. Results were so satisfactory that in 1957 routine fumigation of all holds was discontinued and periodically-applied pyrethrum sprays substituted for controlling moth and other surface infestations. In the James River fleet, where temperatures were higher, spray applications were started in mid-April. Three applications were made at two-week intervals followed by two additional ones at monthly intervals.

At the Hudson River location spray applications started in mid-May and were applied at similar intervals with the exception that the last of the monthly sprays was eliminated. Water base sprays containing .3% pyrethrums and 3% piperonyl butoxide were applied to the surface of the grain at the rate of 2 qt. per 1,000 sq. ft. To supplement the pyrethrum spray, a 3% methoxychlor spray, made from an emulsifiable concentrate, was applied once each season to the skin of the ship, the deck floor of the 'tween deck hold, the underside of the weather deck and to other non-storage areas such as escape trunks and mast houses. Application was made in May at the James River fleet and between mid-June and mid-July at the Hudson River fleet.

Success of spray treatment at the Hudson River fleet was outstanding. At the James River fleet, sprays successfully supressed both moth and beetle infestations as long as periodical applications were continued. If stopped, the insects began to multiply in the surface grain.

Tests conducted with a malathion spray showed it to be as effective—if not more so—than pyrethrum. However, the peculiar odor left in the holds made it difficult for workmen to detect objectionable odors on the grain.

Keeping Quality of Grain

The history of wheat storage in the mothball fleets indicate that wheat can be safely stored without serious loss for considerable periods. Although the average storage period to date is 26.3 mo., one cargo of No. 1 hard winter and spring wheats loaded May 25, 1953, was discharged with no reduction in grade on March 3, 1959, after being in store for 5 years, 9 months and 8 days. Of 419 loaded cargoes, 218 had been discharged through June 30, 1959. The combined shrinkage from all causes was slightly over one-half of one percent. This shrinkage includes wheat removed as samples or because of damage, reduction in moisture, and handling loss.

Four percent of the wheat showed an increase in grade when loaded out compared with 4.4% which showed a decrease in grade. Of the wheat showing a decrease in grade about one fourth of it was caused by circumstances beyond control of the maintenance crew.

The cost of storage based on an average 26-month period was $0.1464 bu. less than for terminal warehouse storage, or a saving of $13,923,837.40 on the 95,108,179 bu. wheat stored in the two fleets. «

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QUARTER CENTURY CLUB

Bay State Milling Co., Winona, Minn., convened its 10th annual Quarter Century Club at Winona recently. Originally formed with 48 charter members, the club currently has 58 members. Paul T. Rothwell, Bay State's board chairman, and Bernard J. Rothwell, II, president, addressed the group. Paul B. Miner, vice president and general manager, was toastmaster. «

HIGHLIGHT OF THE JANUARY meeting of the Northwest Section, American Association of Cereal Chemists, in Minneapolis, was presentation of a testimonial plaque to Del B. Pratt, Jr., 1959 president of AACC. Dr. John A. Johnson, Kansas State University, Manhattan, current president, at the left, made the presentation. The inscription on the plaque commends Mr. Pratt not only for his work as president but also credits him, while treasurer 1951-58, with "bringing strength and security to the association." Mr. Pratt is with the Pillsbury Co. Dr. Lawrence Zeleny, chief of standardization and testing, grain branch, U.S. Department of Agriculture, Washington, was the luncheon speaker. Dr. Zeleny covered a recent tour he made through Russia, accompanying his talk with slides.

Accountants Hear Talks On Transit Tonnage, Weighing, Inspection

Phil Corby, Grain Merchants, Inc., Wichita, Kansas, addressed the Flour Mill and Grain Accountants Assn. in Topeka on the subject of "Transit Tonnage Application on National Cash Register Machine."

In addition to Mr. Corby, Georgell Douglass, warehouse examiner, Kansas State Grain Inspection and Weighing Department, Topeka, addressed the group on problems which confront his department, along with a brief explanation of departmental operations.

Other business included naming of a nominating committee in preparation for election of officers on April 21. Elected to the committee were Dwight Burton, H. S. Alexander and Harry Schierling. «

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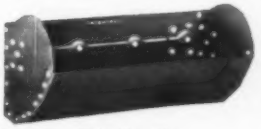
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WHERE THEY ARE MEETING

February

Feb. 18—District 14, Association of Operative Millers, Writers Manor, Denver, Colo.; sec., John Streit, Wallace & Tiernan, Inc., Denver.

February 24-25—District 11, Association of Operative Millers; Roanoke Hotel, Roanoke, Va.

Feb. 25 - March 4—National Retail Bakers Week; chm., Walter R. Schuchardt, 735 West Sheridan Road, Chicago.

March

March 6-9—American Society of Bakery Engineers, annual meeting; Edgewater Beach Hotel, Chicago, Ill.; sec., Victor E. Marx, Rm. 1354 LaSalle Wacker Bldg., 121 W. Wacker Drive, Chicago 1.

March 8-9—Nebraska Grain & Feed Dealers Assn., annual convention; Sheraton-Fontenelle Hotel, Omaha, Neb.; sec., Howard W. Elm, Trust Building, Lincoln, Neb.

March 10—District 7, Association of Operative Millers, Biltmore Hotel, Oklahoma City, Okla.; sec., Harry H. Stark, Ross Machine & Mill Supply Co., Oklahoma City.

April

April 4—Allied Trades of the Baking Industry Div. 4, annual assembly. Abraham Lincoln Hotel, Reading, Pennsylvania; sec., Vernon N. Bush, 330 Bern St., Reading, Pa.

April 7-8—Districts 1 and 2, Association of Operative Millers, joint meeting; Manhattan, Kansas; contact Prof. E. P. Farrell, Kansas State University, Manhattan, Kansas.

April 9-12—Oklahoma-Arkansas Bakers, annual convention; Western Hills Lodge, Wagoner, Oklahoma; sec., Jno. C. Summers, Oklahoma State Tech., Okmulgee, Oklahoma.

April 9-13—American Association of Cereal Chemists, annual convention; Baker Hotel, Dallas, Texas; sec., Ray Tarleton, 1955 University Ave., St. Paul 4, Minn.

April 10-12—Pacific Northwest Bakers Conference; Multnomah Hotel, Portland, Ore.; sec.-mgr., Roger Williams, P.O. Box 486, Salem, Ore.

April 13-15—Southern Bakers Assn., 47th annual convention; Palm Beach Biltmore Hotel, Palm Beach, Fla.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St. N.W., Atlanta 3, Ga.

April 16-18—Texas Bakers Assn., annual convention; Granada Hotel and Inn, San Antonio, Texas; sec., Guy J. Lichlyter, 1121 National Bldg., Dallas 1, Texas.

April 16-19—Associated Retail Bakers of America, annual convention; Hotel Sherman, Chicago, Ill.; sec., Miss Trudy Schurr, 731-35 W. Sheridan Rd., Chicago.

April 23-26—Millers National Federation, annual convention; Shoreham Hotel, Washington, D.C.; sec., John Sherlock, MNF, 309 W. Jackson Blvd., Chicago 6.

April 23-28—Grain Elevator & Processing Superintendents, annual convention; Baker Hotel, Hutchinson, Kansas; sec., Dean M. Clark, 1115 Board of Trade Bldg., Chicago 4.

May

May 20-21—Iowa Bakers Assn., annual convention; Des Moines Hotel, Des Moines, Iowa; sec., Earl F. Weaver, 6416 Colby Ave., Des Moines 11, Iowa.

May 20-22—Rocky Mountain Bakers Assn., annual convention; Continental Denver Motor Hotel, Denver, Colo.; sec., Fred Linsenmaier, Box 871, Denver 1.

May 22-25—Association of Operative Millers, annual technical conference and trade show, Hotel Pick-Nicollet, Minneapolis, Minn.; sec., Donald S. Eber, 639 Board of Trade Bldg., Kansas City, Mo.

May 26-28—National Association of Flour Distributors, annual convention; Hilton Hotel, Pittsburgh, Pa.; sec., Philip W. Orth, Jr., Ph. Orth Co., 304 E. Florida St., Milwaukee 4, Wis.

June

June 4-6—New York State Association of Manufacturing Retail Bakers, annual convention; Westchester Town House, Yonkers, N.Y.; sec., Frank E. Englert, 135 Primrose Drive, New Hyde Park, N.Y.

June 4-6—The National Council of the Baking Industry, annual conference; Royal York Hotel, Toronto, Ont., Canada; managing director, R. H. Ackert, 4 N. Sherbourne St., Suite 105, Toronto 5, Ont., Canada.

June 10-12—Bakers Association of the Carolinas, annual convention; Ocean Forest Hotel, Myrtle Beach, South Carolina; sec., Mary E. Stanley, P.O. Box 175, Rockingham, S.C.

July

July 16-19—West Virginia Bakers Assn., 1961 convention; the Greenbrier Hotel, White Sulphur Springs, W.Va.; sec., Mrs. Edward R. Johnson, 611 Pennsylvania Ave., Charleston 2, W.Va.

September

Sept. 17-18—Wisconsin Bakers Assn., annual convention; Plankinton House, Milwaukee, Wis.; sec., Fred H. Laufenburg, 6173 Plankinton Bldg., 161 W. Wisconsin Ave., Milwaukee 3.

Sept. 17-19—Southern Bakers Assn., annual production conference; Dinkler Plaza Hotel, Atlanta, Ga.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St., N.W., Atlanta 3, Ga.

October

Oct. 7-12—1961 Baking Industry Exposition; Convention Hall, Atlantic City, N.J.; sec.-treas., Harold Fiedler, 20 N. Wacker Drive, Chicago 6, Ill.

November

Nov. 13-14—Washington Association of Wheat Growers, annual convention; Walla Walla, Washington; sec., Geo. W. Johnson, Ritzville, Wash.

CALENDAR FOR 1961-62

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65th Annual Technical Conference
ASSOCIATION OF OPERATIVE MILLERS

May 22-25
Pick-Nicollet Hotel
Minneapolis

General Chairman: Alden A. Ackels, Bay State Milling Co.; **Honorary Chairman:** Frank Schneider, Twin City Machine Co.; **Secretary:** W. A. Howie, J. K. Howie Co.

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Co-Chairmen: George E. Swarbreck, THE Northwestern MILLER, and Lyle P. Carmony, Sterwin Chemicals Inc.

EXHIBITS COMMITTEE

M. L. Olson, Simon-Carter Co.; O. J. Zimmerman, SMICO Sales Co.; Roy Gorgen, the Day Co.; Fritz Schiess, the Buhler Corp.

PUBLICITY COMMITTEE

Chairman: Ken W. Wakershauser, THE Northwestern MILLER; Louis Sosland, the Southwestern Miller; Ken Ferguson, American Miller & Processor.

ALLIED TRADES COMMITTEE

Co-Chairmen: B. Wayne Carmichael, Merck & Co., Inc., and Robert J. McDonald, Bemis Bro. Bag Co.; treasurer, Tom Hartman, the Daffin Corp.; George W. Potts, THE Northwestern MILLER; Robert Hoel, Graton & Knight, Inc.; Fritz Schiess, the Buhler Corp.; Max Springer, Day Sales Co.; Dan Strachan, Simon-Carter Co.; Jack Houston, Wallace & Tiernan, Inc.

LADIES COMMITTEE

Co-Chairmen: Mrs. George B. Wagner, Mrs. Robert D. Ellis; treasurer, Mrs. George E. Swarbreck.

ELEVATOR INTEREST SOLD

Tri-State Milling Co., which has held a half interest in the Murdo (S.D.) Elevator Co. since 1928, will assume control of the entire operation about April 1. Harold Peck, manager since 1948, is continuing as manager for a while, but has sold his interest and will move to Custer, S.D., about June 1 to enter another field of business. The Peck family purchased the facility in 1924, and Otto and Charles Peck operated it as Peck Bros. until 1928. «

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Variable Speed Drives

The industrial products division of Western Gear Corp. announces design and manufacture of a complete line of mechanical variable speed drives which it is marketing to industry under the trade name "Vari-Master." It is claimed to be the first mechanical variable speed drive designed to customer requirements. Vari-Master is available in three sizes, covering the horsepower range from

1 to 10 h.p. with a wide speed range up to 8 to 1 ratio of speed variation. Vari-Master is offered in both drip proof and totally enclosed construction. A standard, NEMA "C" face motor, with standard shaft extension is utilized. The motor can be of drip proof, totally enclosed or explosion proof design. The Western Gear Vari-Master embodies a number of engineering features, many of them said to be exclusive. For example, Vari-Master uses a fan on the variable speed shaft to allow maximum cooling of the belt and longer belt life. Discs are positively positioned by shaft shoulders, thus there is no possibility of belt misalignment. The constant speed disc assembly is saddle mounted on its own bearings, allowing vibration-free operation. Discs are sized to permit long, trouble-free belt life.

Circle No. 4735
on Reply Form for Details

Control System

The electronics control division of Flo-Tronics, Inc., has developed the "MAG-PAC" magnetic control system for package, part, unit or container conveyor lines, said to be fully automatic for automation of an entire plant conveyor system to any degree desired. Major benefits claimed include improved processing or warehousing efficiency, lower material handling costs and savings in time and labor. Principal units in the MAG-PAC system are the dispatcher, marker, tally, reader and coordinator. An optional selector unit is provided where operators are intercepting particular items from the conveyor line as needed. With the appropriate combination of these interchangeable basic control units, says Flo-Tronics, any conveyor system for packages, parts, units or containers can be pre-set to automatically direct materials to selected stations, unload or load when ready, follow various routes, give priority and carry out similar functions. Conveyor lines can be horizontal, vertical or in combinations. They can run between floors or between buildings. MAG-PAC units can be installed on existing conveyor systems or new installations, in standard or custom models to meet varying requirements.

Circle No. 4736
on Reply Form for Details

Bearing Take-up Frames

Multi-bearing take-up frames, especially designed to accommodate any type of bearing, babbitted, bronze ball or roller, are available from Link-Belt Co. They can be obtained from stock in 11 sizes, and allow horizontal

bearing adjustments from 6 in. to 24 in., to mount 143 different bearing shaft sizes from ⅝ to 2 7/16 in. diameter. Mounting pads are easily adjusted to the mounting holes in the pillow block. One pad is moved by an adjusting screw, while the other pad slides freely to the proper distance between the pillow mounting holes. This mounting flexibility, the company states, permits each size of take-up frame to accept a wide range of pillow block bore sizes.

Circle No. 4737
on Reply Form for Details

'Isolation Pads'

Kinetic isolation pads, to isolate vibration and eliminate lagging of machinery to floors without cementing, sawing, waiting or floor drilling, are available from Consolidated Kinetics Corp. Pads are furnished in 18 in. by 18 in. by ½ in. sheets pre-

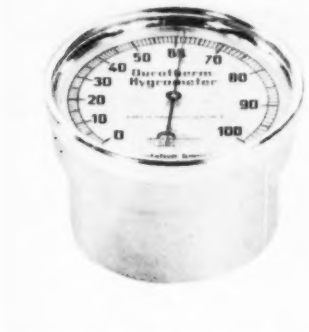
scored at 2 in. intervals for fast, easy cutting to size on the job site with a pen knife. The firm says the pads are guaranteed not to creep, permitting mobile rather than permanently installed production machinery for the most efficient work flow. Kinetic vibration control products utilize the extreme elasticity of glass fibers, resulting, it is claimed, in outstanding isolation efficiency plus high internal damping for machine stability.

Circle No. 4738
on Reply Form for Details

Compact Hygrometer

Abrax Instrument Corp. offers its Abbeon Model No. R560 container-type hygrometer for obtaining relative humidity of samples of such materials as flour, wheat or other grains. The instrument consists of two parts, an especially calibrated Abbeon hygrometer, which fits into the top of the other part, an oxidized aluminum container. The sample to be tested is placed in the aluminum container and

left there for approximately 20 min., at the end of which time the hygrometer will indicate relative humidity of the sample. Once relative humidity of the sample is known, it is then possible to determine the percentage of



absolute moisture of the sample by consulting a table of humidity equilibrium. Tables are included with each instrument giving the humidity equilibriums for a number of products. Model No. R560 has an over-all diameter of 4 in., a height of 3¾ in. and a measuring range of zero to 100% relative humidity.

Circle No. 4739
on Reply Form for Details

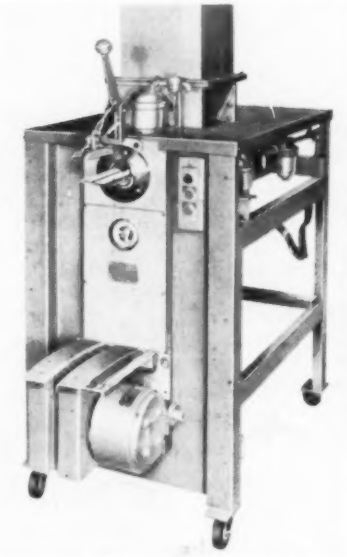
Laminated Flooring

Of interest to the milling and grain industries, among others, is a heavy-duty, laminated hardwood flooring for trucks and trailers, said to offer substantial savings in installation and maintenance. Marketed by E. L. Bruce Co., the material is of selected oak, utilizing the latest electronic laminating processes and waterproof glues to provide full trailer or truck length boards up to 12 in. wide. Shipped pre-cut to the buyer's exact specifications, Bruce "Dura-Wood" flooring is available with shiplap, center-match or special machining. Extra durability and serviceability are claimed through use of edge-grain surface. Cutting, matching and joining of random-length boards over stringers is eliminated, along with waste from cuttings and numerous extra bolts used to join butting, random-length boards.

Circle No. 4740
on Reply Form for Details

Bag Shaker

Reductions in bag sizes and resultant savings in costs are claimed with the aid of a bag shaker developed by E. D. Coddington Manufacturing Co. The shaker can be used on either the firm's Auger-Matic or Air-Pac



valve bag packers. The shaker is an accessory consisting of two shaker arms powered by a small, built-in electric motor which causes a reciprocal motion of the arms in contact with the bottom of the bag. This agitation of the bag throughout the entire filling operation causes the materials, especially those which do not readily level in the valve bags, to settle quickly into their most compact form, allowing use of minimum size bags. The shaker is attached to the front panel on the scale of either packer. A counterweight is provided to compensate for scale balance, and can be adjusted to accommodate bags of various lengths. The electric motor is connected into the wiring circuit of the packer with a flexible cable to prevent interference with movement of the scale.

Circle No. 4741
on Reply Form for Details

Outdoor Storage Cover

Development of a plastic-laminated, burlap outdoor storage cover, available in a wide range of sizes and constructions, has been reported by Bemis Bro. Bag Co. It is being marketed under the name "Burlene." Bemis is now marketing the plasticized burlap cover which, it states, has been tested successfully. Benefits of the new construction include water resistance, tear and puncture resistance and multiple-use achieved through the special burlap and polyethylene lamination process. A pre-formed construction is said to prevent dirt and dust contamination of the item covered. In addition, the Burlene cover, it is claimed, will not develop leaks due to flexing or normal abrasion.

Circle No. 4742
on Reply Form for Details

Cone Crushers

The Robinson division of Young Machinery Co., Inc., is offering an illustrated, technical catalog on Young "Robinson" horizontal saw

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tooth and vertical cone crushers. The bulletin, C-360A, provides full design and dimensional data for seven different sizes of saw tooth crushers and three sizes of vertical cone crushers. In addition to illustrations of various models, the catalog shows close-up photographs revealing saw tooth construction as well as vertical cone grinding elements. Horizontal crushers are designed for processing, among other materials, dried biscuits and flour. Copies of the bulletin are available upon request.

Circle No. 4743
on Reply Form for Details

Belt Splicing

Conveyor installations using belts manufactured entirely of an interwoven carcass may now be spliced with a reversible belt splice designed for quick, simple installation, states General Splice Corp. The heavy duty, hinge-type "Minet" splice is said to eliminate need for templates, drilling or hole punching. Design permits installation of the splice in one piece. As the conveyor operates, the hinge plate separates into sections at prescored notches to conform with conveyor trough curvature. The one-piece design is claimed to assure the closest possible fit, resulting in a tight, leakproof but flexible joint.

Circle No. 4744
on Reply Form for Details

Timing Belt Drives

Timing belt drives for mechanical power transmission are available for load capacities from fractional horsepower up to 600 h.p. and for belt speeds up to 16,000 fpm. from T. B. Wood's Sons Co. To select a timing belt drive for any particular application, it is necessary to determine: Circular and belt pitch (five stock pitches), drive width, pitch diameters or driver and driven pulleys, and belt pitch length. All the information needed, says the manufacturer, is to select the proper timing belt drive with minimum arithmetic found in an 80 page catalog, No. 19103, available from T. B. Wood's Sons Co.

Circle No. 4745
on Reply Form for Details

Temperature Probe

A portable temperature probe has been developed and made available to the grain trade by Rolfes Electronics Corp. The model features a thermistor-tipped temperature cable which is completely separated from the probe itself. The thermistor tip fits into a special protective slot in the probe end for insertion in the grain. When the desired depth is reached, however, the probe simply is pulled up and the thermistor ejected, remaining at the spot being checked until pulled up by cable. This, the company explains, enables use of several cables so that more than one spot can be probed at a time instead of waiting for temperature stabilization at each point, as with one-piece probe and thermistor units.

Circle No. 4746
on Reply Form for Details

Vacuum Cleaner

A vacuum cleaner, designated D-125 and said to be low cost and holding 11 gal. liquid or 1 1/5 bu. dry material, can be obtained from Multi-

Clean Products, Inc. The cleaner has a one-half h.p. motor, develops a water lift of 66 in. and, says the manufacturer, offers many of the features of larger, more expensive models at a price substantially lower than most other vacuum cleaners of comparable capacity.

Circle No. 4747
on Reply Form for Details

Please send me more information. I have circled code numbers of items in which I am interested.

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SOFT WHEAT SUPPLIES:

Millers, USDA Emphasize Seriousness of Situation During National Session

Supplies of soft wheat took the lion's share of the attention at the winter meeting of the National Soft Wheat Millers Assn. in Louisville, Ky. Always an important question, it has taken on added importance and significance in the past couple of months and the agenda reflected the situation.

President Fred N. Rowe, Valley City Milling Co., Portland, Mich., presided over a gathering of more than 90, a representative cross section of the membership of this live organization. The six hours of conference were jam packed with interest stimulated from the podium with speakers 100% conversant with their subject.

Government View

The government's viewpoint of the soft wheat situation was expressed by Robert E. Post, Agricultural Marketing Service, U.S. Department of Agriculture. Stressing the fact that soft wheat is what government people refer to as being "in surplus supply," Mr. Post explained how it is eligible for movement into export channels for foreign currencies as well as in other ways provided for under two pieces of federal legislation—Public Law 480 and Public Law 665.

He pointed out what almost happened back in 1957-58 when, as the result of very heavy exports, the carryover of soft red winter wheat that season was permitted to dwindle almost to the point of total extinction—at six million bushels.

Mr. Post went on to explain that while USDA has no jurisdiction over the export sale of wheat when paid for in dollars, it can exert a very high degree of control in deals that involve payment in foreign monetary units or barter. Insofar as is known, the government has never issued an order forbidding the export of any specific class of wheat under either of the two public laws, but as a matter of fact, it can and does accomplish the same purpose by the simple expedient of failing to specify the class in the routine authorization which must be issued as a necessary preliminary to export disposal.

Getting down to cases as far as the current soft red winter wheat situation is concerned, Mr. Post said: "We exported 19.9 million bushels in the period July to December of 1960 and an additional 7.8 million bushels either have been sold for January shipment or are to be acquired under outstanding purchase authorizations. These latter include exports to the United Arab Republic and Poland. **I understand that no further authorizations to purchase soft red are planned for this marketing year."**

Switching from red to white soft wheat, Mr. Post mentioned that because of the relatively high price for the latter in the eastern part of the U.S., exports this season from the Great Lakes and the East Coast have been less than half as large as a year ago. Of the total of 4.2 million bushels exported this season, 2.3 million were under PL 480 and the rest for dollars.

While recognizing that wheat exports under government programs should not be permitted in such quantities as to push the price paid by domestic consumers to undue heights, Mr. Post made the point that such exports should not be restricted to a level at which domestic prices would

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become abnormally depressed due to the creation of a position of over-supply.

Merchandisers' View

To round out the picture and blueprint what conceivably might happen now that some 535 members of Congress will soon be engrossed in "saving the farmer," even though a large percentage of them have no further stomach for legislative salvation, Don M. Mennel of the Mennel Milling Co., Toledo, presented a paper on "Soft Wheat Supplies . . . The Merchandisers' Viewpoint." He did a masterly job of analyzing the current and potential situations with respect to how annual carryovers have on occasion skirted right on the danger point under present tinkering with production.

Mr. Mennel showed his audience just how much more serious the situation could develop for soft wheat millers in the event that wholesale acreage cuts should be decreed without the use of some semblance of logic in matters of legislation in the first place.

He decried the probability of what he described as "political opportunists" paying no attention whatsoever to the supply and demand of red and white soft wheats in asking for "across the board" acreage reductions to offset the impact of the billion and more bushels of hard red winter and hard red spring wheats now in the government's hands—representing the major oversupply problem.

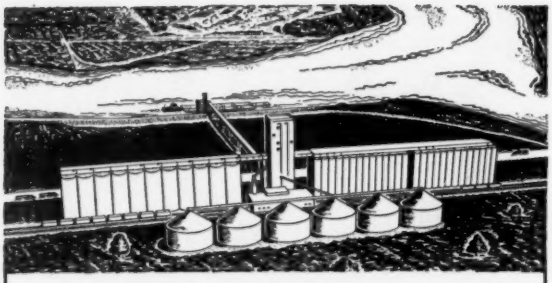
Mr. Mennel was firm in his demands that not only as an organization but as individual members, having a tremendous stake in their own plants, the soft wheat millers must take the necessary steps to alert their congressmen and senators to the dangers of blind acreage reductions.

Complementing Mr. Mennel's viewpoint and his serious concern over what conceivably can and will happen unless a lot of spadework is done at the grassroots levels, Warren E. Collins, assistant director, American Farm Bureau Federation, analyzed prospective wheat regulation.

He blamed the paradoxical shortage of soft wheat on what he described as bad federal law, saying that "those long outdated laws that regulate production and marketing of wheat without regard to type were set up in the late 1930's to help improve farm income. Because the laws make no differentiation between different types of wheat, we have a badly distorted wheat production situation . . . more than a two-year supply of some types, but none of others."

Feed Outlook

L. D. Compton, manager for the by-products division, Commander Larabee Milling Co., handled the subject of the feed outlook. On feed grain prospects, he said in part: "For the present, they seem relatively stable even though the tremendous supplies in the long run are bearish. We have lived with this situation for some time and there is



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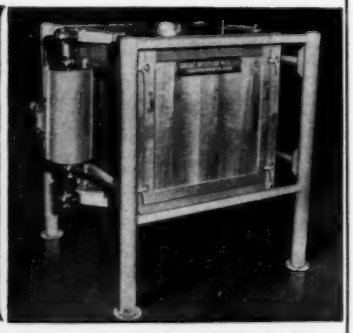

It's new. A brand new sanitary sifting machine, developed by the Great Western Mfg. Company for rebolting flour before packers or bulk loading operation. Also used for screening any dry materials. Feed dresser, grader, etc.
Can make up to 8 separations if required. The most perfectly balanced floor mounted sifter made.
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Our ALL-PNEUMATIC MILL
"Golden Loaf"— HOYT'S BEST FLOURS
. . . are milled in our completely modernized Pneumatic Mill on the tested and tried flow that has made these flours front-ranking since 1901.
BULK OR SACK LOADING — Daily Capacity—5,500 Cwts.
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nothing at present which would indicate any drastic increase in these prices . . . in fact, there seems to be a strong underlying strength, both domestically and for export."

Touching on the subject of formula feeds, Mr. Compton struck a generally optimistic note on the prospect for all potential outlets—cattle, both dairy and feeding; hogs; poultry and eggs. On the subject of marketing techniques, he stressed the desirability of cultivating the customer to a greater extent and becoming more aware of his needs and wishes. "A little more planning," he said, "might enable the miller to give the customer shipment on a specific date, as well as loading the car in a specific manner could be helpful to the mixer and make him aware of the fact that we want to offer better service to him."

Millfeed Prices

Mr. Compton concluded his well received presentation by making a dollar and cent prediction for the millfeed market from now until the end of the current crop year. "We have had quite a little shakeout recently," he declared, "and we should now enjoy a little stability at this level ($34 ton for bulk middlings at Kansas City) with anticipated bulges of $4 to $5 until mid-May at which time the price likely will drop to $30 and down to $28 during June. The bulges I mention will, of course, be primarily influenced by the amount of flour milling time available and the severity and length of our winter weather."

During that portion of the agenda set aside for the 20th anniversary of enrichment—the Quiet Miracle—Howard Lampman of the Wheat Flour Institute urged a broadening in the scope of the publicity to newly-weds.

Rex Edison, J. F. Bess & Co., president of the Self-Rising Flour and Cornmeal Program, in an optimistic report, said that the promotional activity is now paying increased dividends in increased sales. He also announced that October had been selected by the directors of the program as "Biscuit and Muffin Month."

Tom White of the Alabama Flour Mills also contributed to this part of the program.

The meeting concluded with a panel discussion on the subject of soft winter wheat prospects for 1961. The mid-December release of the U.S. Crop Reporting Board was used as a conversation piece. It was pointed out that while the Illinois prospect at that time showed a goodly increase over the 1960 outturn, this could easily be offset by decreases in other states such as Ohio and Pennsylvania. Representing the states of the soft wheat producing area were Mr. Mennel, Mr. White, E. E. Powers, Charles P. Crawford, Harry Withrow and C. B. Knappen, Jr.

The next meeting will be held during late spring in Washington, D.C. «

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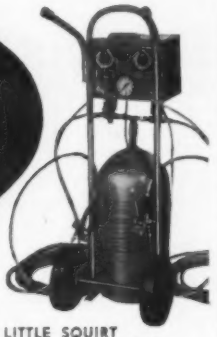

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A Salesman Retires . . . But His Friends Will Hold Warm Memories

By KEN W. WAKERSHAUSER
Managing Editor of THE MILLER

There are numerous ways of taking the measure of a man—his contributions to the field of work in which he serves, financial success, personal achievements—among many.

But when he retires from 45 years of activity, as William J. Geimer did at the end of January, relinquishing his duties as manager of the packaging service of Bemis Bro. Bag Co., all the measuring factors are brought into play. And in the case of "Bill" Geimer the key criterion centers around the friends he has made, solid friendships that every good salesman makes, respects and retains for a lifetime.

Impulsive, enthusiastic, always alert to seizing upon an idea which gave promise of adding to company growth or service, he used these traits during his years with Bemis to superb company advantage.

In the particular field of packaging service where he served — fostering the rigid philosophy that top merchandise must have A-1 equipment and service for application — his friends, and those in Bemis who know, firmly believe Mr. Geimer has no peer.

He has been "Mr. Packaging Service," seriously and without reservation, for Bill Geimer was putting forth ideas as to how the job could be done before packaging service came into formal corporate existence. And when it did—he was the first manager. The clincher rests with the fact that he was attending Bemis' annual managers' conferences—a distinction reserved for those only of high promise—before the packaging service as such was formed.

Story of Deltaseal

Which brings to the front another company exclusive, one with which Mr. Geimer had much to do in achieving prominence in the industries served by Bemis. That is Deltaseal, Bemis' patented system of closure for 5 lb. bags of flour. The story of Deltaseal itself is one of enterprise, imagination and success, with Bill Geimer—and other key Bemis figures —closely entwined in its history.

Taking the story back to its origin, Deltaseal brings into the picture the late Daniel Belcher, senior vice president and company director, the man in the organization to whom others came with their problems of printing, bag sewing and manufacturing—Mr. Belcher was Bemis' "anchor to lee-

AMONG THOSE who greeted William J. Geimer during a reception shortly before his retirement were Lyman Wakefield, First National Bank of Minneapolis, at the left; Judson Bemis and, at the far right, Mr. Geimer's son, William C. Geimer.

A RECEPTION in William J. Geimer's honor was held at the Minneapolis Club shortly before his retirement. These pictures and others accompanying his story show Mr. Geimer with some of his many friends. At the far left he is pictured with George Kelley, Bay State Milling Co., Judson Bemis and R. W. Michalowski (also of Bemis). In the center are Mr. Michawolski; J. Raud, Sperry Operations of General Mills, Inc.; C. W. Akin and J. H. Eastman, both of Bemis; Louis Wimmer, GMI; Robert J. McDonald, Bemis; R. M. Hersey of Bemis (retired), and P. C. Lennox, also of Bemis. At the far right Mr. Geimer poses with Harry Simmons, Fleischmann Malting Co.; Mr. McDonald, his successor in the packaging service, and Roger Kobs, Northrup King & Co.

ward" in turning the company toward paper bags.

Mr. Belcher at one time managed the Minneapolis bag factory, before relinquishing his chores there to become a company officer with staff chores, particularly in research and promotion of Deltaseal for consumer-size bags.

And it is Mr. Geimer, ever the salesman, who is credited with "taking the message" of Deltaseal to those who could make use of it.

Early Years

By way of background, Bill Geimer originally came from St. Louis, where he attended the public schools and Benton College of Law.

He began work for Bemis as a clerk at Kansas City in January of 1916, managed to serve a hitch in the Army during World War I, but has remained with Bemis ever since.

Oldtimers will remember Mr. Geimer's first boss at the Kansas City office as W. C. Singler, who was manager there in 1916. When Mr. Singler was transferred to Minneapolis the young Mr. Geimer also came to that milling center, where he has remained ever since. That was in 1919.

Veteran millers along the river south of Minneapolis swear that Bill Geimer was the first bag salesman to call on them with an automobile. The system of calling was different in those days, too, they recall.

It was common practice, at least in Bill Geimer's forthright manner, to send on a postcard to the mills a week ahead, announcing the pending visit to their establishments. And the towns in turn made it a gala event when the salesman arrived. Generally, the champion checker player was ready and waiting, and so were the millers.

"TAKING IT EASY" is Otto Wilke, Russell Miller-King Midas Mills. The others with Mr. Geimer are Charles Ritz, International Milling Co., and Earl Olson, General Mills, Inc. Not pictured, but at the party and deserving of mention because they are among the oldest of Mr. Geimer's friends, are G. L. Van Lanen and Walter J. Arnold, both of Hubbard Milling Co., Mankato, Minn. Mr. Van Lanen recalls being among the earliest—if not the first—miller upon whom Mr. Geimer called in the early days when he visited the river mills by automobile.

When the Deltaseal development began to gather steam about 1931 Bill Geimer was made manager of its operations—which then amounted to a Bemis department.

Bemis now has its packaging equipment in virtually every Latin American country—and again the energetic Mr. Geimer was a prime mover.

The idea of expanding into Latin America was still warm when seized by him. With characteristic acumen, he made his first stop right in Minneapolis—at the office of a business executive with plenty of Latin American experience.

With the knowledge gained through some keen, well-placed questions, Mr. Geimer sped his shock troops into Latin America, and they've been going back regularly ever since.

'Magna Carta'

One basic landmark by which the Bemis packaging service and Mr. Geimer have been guided is literally a Magna Carta of what the service should do and how it should be done.

Issued as a letter to executives of the company in 1945 "right from the top," it has been retained, scanned time and again, and literally dubbed as the guide for packaging operations.

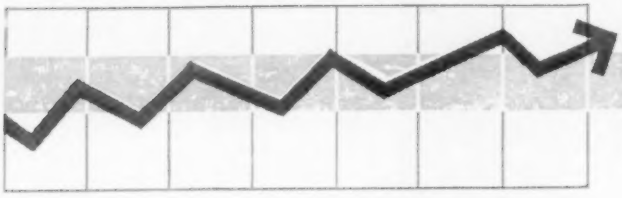
It sets out three purposes of packaging service, at the same time setting up a "company arm" with that designation: (1) To assist with field service in customers' plants, (2) assist in developing mechanical and engineering aids to handling bags in these customers' plants and (3) to give assistance in developing new types of bags and materials.

Lighter Side

Every good salesman tries to choose his periods of relaxation, and for Bill Geimer these lighter interims consist of fly fishing, some card playing, and an astute talent for entertaining his friends with parlor sleight-of-hand.

Mr. Geimer and his wife Katherine have raised a son, William C. Geimer, who is a Minneapolis attorney, and a daughter, Mary Katherine. «

ALTHOUGH PROOF is still forthcoming, Otto Wilke, with Mr. Geimer at the far left, reportedly is the one who taught him to fly cast. In the center is Floyd E. Simons, Northwestern National Bank of Minneapolis and Bruce Stevenson of Bemis, both flanking Mr. Geimer. Caught head-on at the far right are R. Dean Cobb, W. J. Jennison Co.; R. M. Hersey of Bemis (retired) and Mr. Kelley of Bay State.



FLOUR PRODUCTION

A Statistical Service Provided Continuously for Readers of The Northwestern Miller for More than Half a Century.

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Jan. 15-22, 1961	*Previous week	Jan. 17-24, 1960	Jan. 18-25, 1959	Jan. 19-26, 1958
Northwest	793,972	766,961	750,724	797,661	763,800
Southwest	1,653,432	1,567,221	1,577,590	1,476,172	1,383,575
Buffalo	543,226	602,272	485,605	543,138	507,523
Central and Southeast	640,350	638,757	626,198	577,208	569,654
Pacific Coast	428,187	419,706	568,181	458,537	286,283
Totals	4,059,167	3,994,917	4,008,298	3,852,716	3,510,835
Percentage of total U.S. output	77.4	77.4	75	75	75
Estimated total U.S. production	5,244,402	5,161,391			
Accumulated total this month	15,234,471	9,990,069			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Jan. 15-22, 1961	Previous week	Jan. 17-24, 1960	Jan. 18-25, 1959	Jan. 19-26, 1958	Jan. 22, 1961	Jan. 24, 1960
Northwest	109	108	103	119	114	21,708,511	21,372,264
Southwest	125	119	122	112	105	42,842,989	43,895,152
Buffalo	103	115	98	114	107	15,205,657	15,294,432
Central and S. E.	98	98	97	101	100	18,205,055	18,316,037
Pacific Coast	92	90	122	146	91	12,766,712	13,293,209
Totals	110	109	111	115	105	110,728,924	112,171,094

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
Jan. 15-22	194,500	194,081	100
Previous week	194,500	*213,777	110
Year ago	231,000	227,997	99
Two years ago	237,000	260,970	110
Five-year average			*94
Ten-year average			*94

*Revised.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Jan. 15-22	534,250	599,891	112
Previous week	534,250	*553,184	108
Year ago	494,500	522,727	106
Two years ago	430,500	536,691	125
Five-year average			*104
Ten-year average			*95

*Revised.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Jan. 15-22	651,450	640,350	98
Previous week	651,450	*638,757	98
Year ago	643,750	626,198	97
Two years ago	570,260	577,208	101
Five-year average			*93
Ten-year average			*86

*Revised.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
Jan. 15-22	254,250	316,589	125
Previous week	254,250	294,293	116
Year ago	221,750	289,578	131
Two years ago	287,500	267,313	93
Five-year average			*106
Ten-year average			*97

*Revised.

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Jan. 15-22	1,067,250	1,336,843	125
Previous week	1,067,250	*1,272,928	119
Year ago	1,068,800	1,288,012	121
Two years ago	1,032,000	1,208,859	117
Five-year average			*106
Ten-year average			*98

*Revised.

BUFFALO

	5-day week capacity	Flour output	% capacity
Jan. 15-22	525,500	543,226	103
Previous week	525,500	602,272	115
Year ago	493,500	485,605	98
Two years ago	475,000	543,138	114
Five-year average			*107
Ten-year average			*104

*Revised.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Jan. 15-22	466,500	428,187	92
Previous week	466,500	*419,706	90
Year ago	466,500	568,181	122
Two years ago	315,000	458,537	146
Five-year average			94
Ten-year average			89

*Revised.

DURUM PRODUCTS OUTPUT

Durum products output of mills, reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day wk. capacity	Wkly. production	% of capacity
Jan. 15-22	166,000	203,534	123
Previous week	166,000	*206,010	124
Year ago	156,500	182,894	117

	Crop year production
July 1, 1960-Jan. 22, 1961	5,384,440
July 1, 1959-Jan. 24, 1960	5,346,287

*Revised.

Canadian Price Adjustments

Price adjustment figures announced by the Canadian Wheat Board and in effect Feb. 1 were as follows: To U.K. and other European destinations via Canadian and U.S. Atlantic ports, also via St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 4⅝¢ bu.; to other countries, excluding U.S. and territories, from Canadian and U.S. Atlantic ports, 15⅛¢ bu.; from St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 14⅝¢ bu. The above adjustment prices apply to wheat milled in Western Canada. For wheat milled in the Bayport area the rate is ½¢ bu. less, while for wheat milled in the Humberstone area and in the Toronto area the rate is 1¢ bu. less. Wheat milled in the Montreal area is 3¢ bu. less.

Production for Jan. 15-22 is at the left; Production for Jan. 22-29 appears here

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Jan. 22-29, 1961	*Previous week	Jan. 24-31, 1960	Jan. 25-Feb. 1, 1959	Jan. 26-Feb. 2, * 1958
Northwest	758,701	793,972	757,578	782,513	754,775
Southwest	1,620,999	1,653,432	1,565,477	1,468,161	1,417,000
Buffalo	507,953	543,226	593,528	549,125	525,107
Central and Southeast	617,202	640,350	638,352	591,013	620,985
Pacific Coast	443,358	428,187	559,398	454,634	324,184
Totals	3,948,213	4,059,167	4,114,333	3,485,446	3,642,051
Percentage of total U.S. output	77.4	77.4	75	75	75
Estimated total U.S. production	5,101,050	5,244,402			
Accumulated total this month	20,335,521	15,234,471			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Jan. 22-29, 1961	Previous week	Jan. 24-31, 1960	Jan. 25-Feb. 1, 1959	Jan. 26-Feb. 2, 1958	Jan. 29, 1961	Jan. 31, 1960
Northwest	104	109	104	117	113	22,467,212	22,129,842
Southwest	123	125	121	111	107	44,463,988	45,460,629
Buffalo	97	103	120	116	111	15,713,610	15,887,960
Central and S. E.	95	98	99	104	109	18,822,257	18,954,389
Pacific Coast	95	92	120	144	103	13,210,070	13,852,607
Totals	107	110	114	115	109	114,677,137	116,285,427

NORTHWEST
Minneapolis

	5-day week capacity	Flour output	% capacity
Jan. 22-29	194,500	208,601	107
Previous week	194,500	194,081	100
Year ago	231,000	239,559	104
Two years ago	237,000	242,700	102
Five-year average			94
Ten-year average			94

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Jan. 22-29	534,250	550,100	103
Previous week	534,250	599,891	112
Year ago	494,500	518,019	105
Two years ago	430,500	539,813	125
Five-year average			104
Ten-year average			95

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Jan. 22-29	651,450	617,202	95
Previous week	651,450	640,350	98
Year ago	643,750	638,352	99
Two years ago	570,260	591,013	104
Five-year average			93
Ten-year average			86

SOUTHWEST
Kansas City

	5-day week capacity	Flour output	% capacity
Jan. 22-29	254,250	306,475	121
Previous week	254,250	316,589	125
Year ago	221,750	273,463	123
Two years ago	287,500	265,052	92
Five-year average			106
Ten-year average			97

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Jan. 22-29	1,067,250	1,314,524	123
Previous week	1,067,250	1,336,843	125
Year ago	1,068,800	1,292,014	121
Two years ago	1,032,000	1,203,109	117
Five-year average			106
Ten-year average			97

BUFFALO

	5-day week capacity	Flour output	% capacity
Jan. 22-29	525,500	507,953	97
Previous week	525,500	543,226	103
Year ago	493,500	593,528	120
Two years ago	475,000	549,125	116
Five-year average			107
Ten-year average			104

Millfeed Production

Mills in the Northwest, Southwest and at Buffalo, representing 75% of the combined flour milling capacities of those areas, reported production of 54,490 tons of millfeed for Jan. 22-29 compared with an output of 55,036 in the corresponding week a year ago. Production for the previous week of Jan. 15-22 was 56,433, compared to 53,099 in the corresponding week of 1960.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Jan. 22-29	466,500	443,358	95
Previous week	466,500	428,187	92
Year ago	466,500	559,398	120
Two years ago	315,000	454,634	144
Five-year average			94
Ten-year average			89

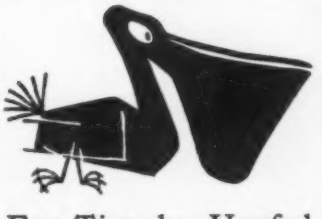
DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day wk. capacity	Wkly. production	% of capacity
Jan. 22-29	166,000	207,430	125
Previous week	166,000	203,534	123
Year ago	156,500	195,514	125

	Crop year production
July 1, 1960-Jan. 29, 1961	5,591,870
July 1, 1959-Jan. 31, 1960	5,541,801

FILLS THE BILL



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The MILLER

TICKER REPORT...

THE NEW YORK STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the New York Stock Exchange:

	—1960-61— High	Low	Jan. 23, 1961 Close	Jan. 30, 1961 Close
Allied Mills, Inc.	39½	32	38¼	39
Allis-Chalmers	40	22	26⅞	26⅞
American Bakeries Co.	47⅞	34½	38	39½
American Cyanamid	59⅝	39¾	46⅞	45½
Archer-Daniels-Midland Co.	40¼	30⅝	37½	38¾
Borden	67¾	40¼	57½	58¼
Continental Baking Co.	51⅛	37½	48½	51⅛
Pfd. $5.50	107	100½	....	104¾
Corn Products Refining Co.	85½	46½	79½	83¾
Cream of Wheat	39½	31½	37½	37
Crown Zellerbach Corp.	55½	39¾	53	54¾
Dow Chemical	99⅝	70⅛	71⅞	74½
General Baking Co	12⅜	7⅞	8⅛	8⅛
Pfd. $8	146	137	....	139
General Foods Corp.	77¼	61½	76¾	74⅛
General Mills, Inc.	35	23⅞	34¾	34¾
Pfd. 5%	111	101½	....	108¼
Merck & Co.	96½	73	77⅞	81¾
Monsanto Chemical Co.	57⅞	35⅛	45⅝	45
National Biscuit Co.	77⅞	49¾	72⅛	76¾
Pfizer, Chas.	38¼	26⅜	33⅛	34⅛
Pfd.	100	96½	....	99
Pillsbury Co.	47⅞	31⅜	47	44½
Procter & Gamble	143⅜	81¾	140¼	143⅜
Quaker Oats Co.	63¾	42	62⅝	61½
Pfd. $6	136	125½	134	134
St. Regis Paper Co.	55½	30¾	36⅛	37½
Standard Brands, Inc.	57⅝	35⅛	56¾	56¾
Pfd. $4.50	79⅝	70¼	73⅜	75
Sterling Drug	75½	44½	74⅞	73¾
Sunshine Biscuits, Inc.	107	85	104¼	105
United Biscuit of America	39⅝	24	38	38
Ward Baking Co.	15¾	9½	12¾	12
Pfd. $5.50	89½	81⅝	84	83
West Virginia Pulp & Paper Co.	56¾	30⅛	38¾	37½

Stocks not traded:

	Bid	Asked
Allis-Chalmers, $3.25 Pfd.	106	109
Corn Products Refining Co., $7 Pfd.	87	90
Crown Zellerbach Corp., $4.20 Pfd.	92½	92¾
Merck & Co., $3.50 Pfd.	80	82
National Biscuit Co., $7 Pfd.	151½	152½
Pillsbury Co., $4 Pfd.	94½	95½
St. Regis Paper Co., $4.40 Pfd.	92	95
West Virginia Pulp & Paper Co., Pfd.	93	95

THE AMERICAN STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the American Stock Exchange:

	—1960-61— High	Low	Jan. 23, 1961 Close	Jan. 30, 1961 Close
Burry Biscuit Corp.	22¾	7¼	20⅜	22½
Horn & Hardart Corp. of N. Y.	53	32½	50½	45¾
Pfd. $5	103	94	....	97
Wagner Baking Co.	6¾	3	6⅛	6¼

Stocks not traded:

	Bid	Asked
Wagner Baking Co., Pfd.	82½	84

CANADIAN STOCKS

	—1960-61— High	Low	Jan. 20, 1961 Close	Jan. 27, 1961 Close
Canada Bread	4.25	3.35	4.00	3.80
Pfd. B	52	48½	49⅛	50
Can. Bakeries	8	4½	6¾	5¼
Can. Food Prod.	6.25	3.10	6.12½	6.12½
First Pfd. (new)	48⅛	44	46	48⅛
Second Pfd. (new)	46	33	46	46
Catelli Food, A	41	38	39⅛	40
Cons. Bakeries	9	7	7⅜	7⅛
Dover Ind.	13½	11	12¼	11½
Pfd.	10	9	9⅜	9½
Federal Grain	50	39	48	47
Pfd.	28	25½	27¼	27⅜
Gen. Bakeries	9	6⅞	7¾	7¾
Maple Leaf Mlg.	16½	11¼	16⅜	15¾
Pfd.	95¼	85	95	95
McCabe Grain	33	26	33	31
Ogilvie Flour	49	40	48	47¼
Pfd.	145	125	138	133
Std. Brands	39½	37¼	39½	....
Toronto Elevator	13	9	11½	11¼
United Grain	15⅜	15½	15⅝	15½
Weston, G., A	45⅛	29	44¾	44
B	46	28½	45½	45½
Pfd. 4½%	92	82	91	89

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CAPACITY • 7,850 CWTS. ——— STORAGE • 3,000,000 BU.

MARKET QUOTATIONS AT A GLANCE

FLOUR

Feb. 1 Quotations, Based on Carlots, Prompt Delivery

	Kansas City Hard winter	Minneapolis Spring	Buffalo Spring	Chicago	New York	Seattle
Bakery short patent	$5.15@5.25	$5.52@5.62	$6.08@6.30	$...@...	$...@...	$...@...
Bakery standard patent	5.05@5.15	5.42@5.52	5.98@6.20	...@...	...@...	...@...
First clear	4.30@4.45	4.95@5.20	5.35@5.50	...@...	...@...	...@...
High gluten	5.40@5.50	5.77@5.87	6.33@6.60	...@...	...@...	...@...
*Family	6.15@7.20	...@6.90	...@6.90	...@...	...@...	...@8.00
*Bakers fancy cake	...@...	...@...	...@...	...@...	...@8.01	...@...
**Straight grade cracker flour	...@...	...@...	...@...	...@5.65	...@...	...@...
*Pastry	...@...	...@...	...@...	...@...	...@...	...@5.56
Rye, white	...@...	4.13@4.23	...@...	4.28@4.43	...@...	...@...
Rye, medium	...@...	3.93@4.03	...@...	4.08@4.23	...@...	...@...
Rye, dark	...@...	3.38@3.48	...@...	3.58@3.68	...@...	...@...
Semolina	...@...	...@6.00	...@...	...@...	...@...	...@...

	Toronto	Winnipeg
*Spring top patent	$6.30@6.35	$6.25@6.45
**Bakers	5.00@5.15	4.75@4.95

MILLFEED

Feb. 1 Quotations, Based on Carlots, Prompt Delivery

	Minneapolis		Kansas City		Chicago		Seattle	
	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk
Bran	$43.50@44.00	$39.00@40.00	$39.00@39.50	$32.00@32.50	$45.00@45.50	$39.00@39.50	$....@....	$....@....
Std. midds.	40.00@41.00	34.50@35.00	....@....	32.00@32.50	45.00@45.50	39.00@39.50	....@....	....@....
Red dog	44.00@45.00	....@....	....@....	....@....	47.00@47.50	....@....	....@54.00	....@50.00
Shorts	....@....	....@....	37.00@37.50	32.00@32.50	....@....	....@....	....@....	....@....
Millrun	....@....	....@....	....@....	....@....	....@....	....@....	....@47.50	....@43.00

	Bran	Shorts	Middlings
Toronto	$59.00@61.00	$60.00@62.00	$61.00@65.00
Winnipeg	46.00@47.00	47.00@48.00	48.00@49.00

*Flour prices 100 lb. cottons.
**Flour prices 100 lb. papers.

G-F Elevator Co.
GRAND FORKS, N. D.

MODERN STORAGE
and
MERCHANDISING
TRUCK-RAIL
★
5,000,000 BUS.
FEDERALLY LICENSED
★
ROBERT (BOB) DOWNHAM, MGR.
P. O. BOX 108, PHONE 2-9491
GRAND FORKS, N. D.

CANADIAN COMMENTARY

Factory Shipments Hit Record Total

Value of factory shipments in macaroni and kindred products industry in Canada reached record total of $16,385,000 in 1959, larger by 3.4% than preceding year's high of $15,851,000, according to annual industry report by Dominion Bureau of Statistics. Number of establishments declined to 18 from 19 and employees to 761 from 778. Salaries and wages increased to $2,341,000 from $2,187,000. Materials and supplies cost less at $8,690,000 compared with $8,746,000. Shipments of macaroni, spaghetti, vermicelli, noodles declined to 109,912,000 lb. from 1958 record total of 112,849,000, while value increased to $15,140,000, from $14,658,000.

New Appointment for A. Searle Leach

President of Searle Grain Co., Ltd., Winnipeg, and a director of several Canadian corporations, **A. Searle Leach** has been appointed director of Western Canada Breweries, Ltd.

Flour Milling Industry Shipments Increase

Factory shipments by flour milling industry in Canada in 1959 rose 2.1%, to $222,898,000, from $218,321,000 in preceding year. There were 71 establishments in both years. Employees numbered 4,234 (4,412 in 1958); salaries and wages totalled $16,819,000 ($15,949,000). Materials and supplies cost $169,770,000 ($173,438,000 in 1958). Shipments of enriched and non-enriched flour in 1959 rose in value to $171,427,000, from $169,642,000 in preceding year; bran, shorts, middlings to $27,882,000 from $26,833,000; rolled oats to $7,881,000, from $7,359,000. Shipments of prepared cake mixes were lower in value at $4,822,000 compared with $5,181,000. Shipment values by provinces in 1959 were: Ontario, $89,694,000 ($87,347,000 in 1958); Quebec, $38,872,000 ($38,954,000); Alberta, $33,224,000 ($31,161,000); Saskatchewan and British Columbia, $41,208,000 ($41,255,000); and Manitoba, $19,901,000 ($19,604,000).

Drop in Export Clearances Reversed

Canadian durums and hard red springs continue in good demand and the drop off in export clearances through the holiday period and into the new year has been reversed.

High quality of the crop induced overseas buyers to take Canadian durums, and from Aug. 1, 1960, to Jan. 16, 1961, more than 22,500,000 bu. cleared for overseas destinations, more than 1 million bushels greater than farmers' deliveries in the same period and resulted in cutback into stocks carried over at end of July last year. France recently purchased cargo of Canadian wheat, but in this instance it was for seed purposes. Several cargoes have been sold out of St. Lawrence ports and Churchill for opening of navigation. Russia has purchased more than 5 million bushels of Canadian wheat since the turn of the year and further sales are in prospect, according to trade reports.

Big surprise is entry of mainland China into Canadian market for cereals. More than 5 million bushels feed barley will soon move out of Pacific Coast ports for Chinese destinations. The same country is said to be in the market for low grade wheat, but this is not in abundant supply and wheat sales are difficult to confirm at this time. It is indicated, however, volume of Canadian cereal grains that will move to China in next several months will be large. Trade estimates suggest figure may reach 100 million bushels, but is generally considered unrealistic.

Payments for Grain Stored on Farms

W. E. Robertson, Canadian Wheat Board commissioner, told farmers attending Manitoba Federation of Agriculture convention in Winnipeg, "Proposed payments on farm stored grain wouldn't affect final returns if applied only to grain to be marketed during crop year." He said if the farmer, for instance, received on the average 3¢ bu. more for grain stored on the farm which was to be marketed during the crop year, then Wheat Board's final payment would be 3¢ less. If, however, federal government is willing to pay this in addition to other Temporary Reserves Act payments, then producer would be 3¢ to the good.

Mr. Robertson also told delegates that, broadly speaking, wheat board cannot find any proof that feed mills in Western Canada are buying wheat at depressed prices. Feed mills, he said, are only interested in buying No. 5 wheat. No one would expect them to buy No. 2 Northern and pay No. 2 prices when they only need a product for feed. If farmers want to sell something better, mills will still only pay No. 5 prices. "Producers may be selling No. 2 and No. 3 Northern are No. 5 prices," he said, "but mills are paying a fair price for the quality of the product they require." «

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Mills at
Montreal, Keewatin, Winnipeg, Medicine Hat

HEAD OFFICE: MONTREAL WESTERN OFFICE: WINNIPEG

LEADING FLOUR IMPORTERS ABROAD

Many of the firms appearing in this list are available to handle the importation of other products besides flour. Some specialize additionally in cereals, some in bakers' sundries and others in feed grains and ingredients. Most of them have connections in adjacent countries and are equipped to handle both import and export business on an extensive basis. For a list of recommended firms dealing in specific commodities or in specific countries write to THE Northwestern MILLER, P.O. Box No. 67, Minneapolis 40, Minn., U.S.A.

ENGLAND

H. Cohen & Co., Ltd.
Hambro House, Vintners' Place
LONDON, E.C. 4
Cable Address: Bortrite, London

Mardorf, Peach & Co., Ltd.
52, Mark Lane LONDON, E.C. 3
Cable Address: "Dorfeach," London

Vaughan Thomas & Co., Ltd.
The Corn Exchange Building
52/57 Mark Lane LONDON, E.C. 3
Cable Address: "Avaumas," London

GERMANY

Einfuhrhandel Mannheim
Hans Werle
MANNHEIM/GERMANY, E2., 1-3
Cable Address: "Einfuhr" Telex 0463270

DENMARK

Brodr. Justesen
COPENHAGEN
Cable Address: "Justesens," Copenhagen

SCOTLAND

Farquhar Brothers
50 Wellington Street GLASGOW,C.2
Cable Address: "Glencairn," Glasgow

McConnell & Reid, Ltd.
19 Waterloo St. GLASGOW
Cable Address: "Marvel," Glasgow

D. T. Russell & Baird, Ltd.
106 Hope Street GLASGOW,C.2

HOLLAND

Bulsing & Heslenfeld N. V.
Established 1885
Damrak 20-22
AMSTERDAM (C)
Cable Address: "Heslenfeld," Amsterdam

STOLP & CO., LTD.
47-48 Damrak AMSTERDAM
Cable Address: "Cleo"

Gebrs. Van Den Bergh's N. V.
ROTTERDAM
Cables: Locomotion Rotterdam

N. V.
Algemeene Handel-en Industrie Maatschappy
"MEELUNIE"
Heerengracht 209 AMSTERDAM

N. V. Agentuur & Commissiehandel
v/h P. C. Vis & Co.
AMSTERDAM
Cable Address: "Visco"

Luchsinger, Meurs & Co.'s
Handelsmaatschappij, N.V.
AMSTERDAM—C.
Cable Address: "Matluch"

M. WITSENBURG JR. N. V.
Postbox 945 AMSTERDAM C.
Cable Address: "Witburg"

GRIPPELING & VERKLEY N. V.
Flour Specialists Since 1889
AMSTERDAM
Cable Address: Bygrip, Amsterdam

Millers in 44 Overseas Nations Read Every Issue of the Miller

John D. Richards, manager of the Seattle plant of Bemis Bro. Bag Co., and head of Bemis' Pacific Northwest sales division, retired Jan. 30 after more than 36 years of company service. He will be succeeded by **E. G. Muir**, assistant manager of the plant and sales division. The retiring executive joined Bemis in 1924 as a foreman and has spent his entire career with the company in Seattle. He served as a salesman, became assistant superintendent in 1948, superintendent in 1950, and production manager in 1956. He has been manager of the plant and sales division since last June. Mr. Muir joined the company in 1949 as a salesman. He became sales manager of the Omaha sales division in 1953 and head of the sales development section in the St. Louis general offices in 1957. He moved to Seattle and his current position last July.

John D. Richards

●

Moving from his present post in grain merchandising at the Omaha Elevator Co., Omaha, is **Henry Royer**, a move announced by the parent F. H. Peavey & Co., Minneapolis. Mr. Royer moves to the Globe Elavators division at Duluth-Superior. He's been with Peavey since 1958 as a grain merchandiser at Omaha. His place at Omaha and Council Bluffs, Iowa, is being taken over by **Richard W. Johnson**, who comes from the Peavey terminal merchandising department at the Minneapolis headquarters. Mr. Johnson's company service dates from 1942 and he has served in several merchandising assignments in the Minneapolis market.

●

There's been a shift in responsibilities and a new appointment by Sterwin Chemicals, Inc., reports **William X. Clark**, vice president. **Lowell R. Patton, Jr.**, assistant sales manager, advances to manager of Sterwin's newly created flour milling and bakery products division, where he'll assume responsibility for complete operation of the division, assuming management of marketing and sales of various bread and food enrichment, bleaching powder and flour treatment products and services. Mr. Patton is a graduate of the University of Texas, where he majored in chemistry, and has been associated with Sterwin since 1948. He is a member of the Association of Operative Millers, Institute of Food Technologists, American Association of Cereal Chemists and the American Chemical Society, among other organizations. **E. Everett Macdonough, Jr.**, has joined Sterwin as manager of special accounts. A graduate chemist, Mr. Macdonough has had extensive experience in the food field. At Sterwin he will be a technical sales-service specialist, working closely with the research and development departments of major food manufacturers throughout the country. Before joining Sterwin he was associated with Chas. Pfizer & Co., Inc. Mr. Macdonough received a B.S. degree in chemistry from Polytechnic Institute of Brooklyn. He is director of the New York Section, Institute of Food Technologists.

L. R. Patton, Jr.

E. Macdonough, Jr.

●

From **R. E. Gorgen**, president of the Day Sales Co., Minneapolis, comes the report that **Oren D. Smithgall** has joined the Hoboken office sales staff of Day Sales to help service the metropolitan New York area. Mr. Smithgall formerly was associated with Daffin Manufacturing Co., where he was sales engineer for the industrial division, promoting sales of industrial and pneumatic conveying equipment through 30 agency offices in the U.S. and Canada. He has over 12 years experience in sales, engineering, operation and testing of processing and conveying equipment. During the past five years Mr. Smithgall was associated with Sprout, Waldron & Co., Inc. «

O. D. Smithgall

OGILVIE CANADA'S LEADING MILLERS

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THE OGILVIE FLOUR MILLS CO. LIMITED

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With the AOM in Minneapolis

District 4 Meeting Draws National Officers, Committeemen, and Some Key Representatives from Canada

District 4, Association of Operative Millers, has written its annual January meeting into history, thanks to some superb footwork on the part of its officers and committee members. Meeting at the Pick-Nicollet Hotel, the sessions were sharpened by the attendance of national AOM officers and committeemen on hand to hear reports and solidify plans for their annual conference in Minneapolis May 22-25.

Highlight of the district program was a paper presented by Thomas E. Hartman, Superior Separator Co., division of the Daffin Corp., on "Wheat Cleaning with Indented Cylinders" (see page 21).

Under the able chairmanship of George Tooker, Commander Larabee Milling Co., the district meeting was rounded out with two tip-top films, "Wheat Food Around the World," and "Look Down," the latter through the courtesy of Continental Machine Co., Savage, Minn.

The district, and its national committeemen and officers, were guests of the Allied Trades Committee of District 4 at an appreciation party in THE Northwestern MILLER clubroom the evening prior to their meeting. The reception was arranged by allied officers: M. L. Olson, Simon-Carter Co., chairman; David P. Tellett, Allis-Chalmers Manufacturing Co., vice chairman; Lyle P. Carmony, Sterwin Chemicals, Inc., treasurer, and Ken W. Wakershauser, THE MILLER, secretary.

National Business

The meeting was climaxed with a luncheon attended by both the district and national representatives, with Stuart Butler, Maple Leaf Milling Co., Ltd., AOM president, presiding. As part of the luncheon meeting, Donald S. Eber, executive vice president, reported on plans taking shape for the annual technical conference.

An opportunity also was provided for reports by AOM's education, sanitation and technical committees.

Prof. Eugene Farrell, Department of Flour and Feed Milling Industries, Kansas State University, Manhattan, explained plans and progress being made for publication of the Cereal Millers Handbook, expressing optimism that the material should go to the printers this spring.

Paul McSpadden, Commander Larabee Milling Co., reported on progress being made by AOM's sanitation committee. The group covered 22 specific subjects at its meeting, he stated, in addition to conferring with a representative of the Food and Drug Administration, planning for the "What's New" panel of the annual conference, and studying the problem of boxcar insect infestations. Mr. McSpadden, reporting for George B. Wagner, the Pillsbury Co., committee chairman, who was unable to attend, stated that the committee plans to give the railroads suggestions as to materials which they can use to spray boxcars.

He also explained briefly plans of the committee to work with the Armed Forces Control Board to stop insect pests reportedly now reaching food used by the military.

Tibor Rozsa, the Pillsbury Co., in the absence of E. S. Dybevick, International Milling Co., technical committee chairman, reported on progress made in his group's area of activity. Mr. Dybevick is out of the country at the present time.

• • •

AOM Technical Committee Meeting

The Technical Committee of AOM had its mid-year working meeting at the Pick-Nicollet Hotel, Minneapolis, Jan. 26-27, 1961. The following committee members were in attendance:

Fred Abbott, General Mills, Inc., Minneapolis; H. S. Gabbert, General Mills, Inc., San Francisco; David Mattson, Atkinson Milling Co., Minneapolis; Jack Miller, Ismert-Hincke Milling Co., Topeka, Kansas; T. C. Mills, Ogilvie Flour Mills, Ltd., Montreal; Dewey Robbins, Fisher Flouring Mills Co., Seattle; J. A. Shellenberger, Kansas

Maple Leaf Milling Co. Limited.

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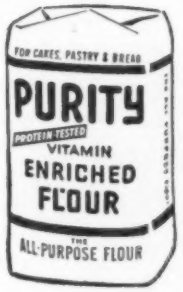

MILLS & FEED PLANTS LOCATED—

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Winnipeg • Medicine Hat • Calgary • New Westminster

State University, Manhattan; John Wingfield, Colorado Milling & Elevator Co., Denver; Robert Wichser, Quaker Oats Co., Barrington, Ill., and T. A. Rozsa, the Pillsbury Co., Minneapolis.

The national officers who attended were Stuart Butler, president; Alden A. Ackels, vice president, and Donald S. Eber, executive vice president. E. S. Dybevick, chairman of the committee, was out of the U.S., and in his absence T. A. Rozsa conducted the meeting.

Tibor Rozsa

The program committee of the 1961 Minneapolis national conference was represented by A. B. Ward and Robert Ellis.

Invited guests were Dr. I. Hylnka of the Dominion Grain Research Laboratories, Winnipeg; Don Fletcher and Gene Hayden of the Crop Quality Council.

Pressing Need

The committee became aware of a pressing and immediate need for a definite and accepted experimental milling method for the evaluation of milling values of wheat. Milling value, or as it is sometimes called, millability, is a complex concept involving such factors as the ability of a wheat sample to provide long top grade flour extraction due to its low ash content and provide long total flour extraction due to the separability of the endosperm from the bran; to provide good protein recovering in milling; provide good tolerance to tempering moisture; to be easy to grind and sift.

The Pillsbury Co. accepted the responsibility to mill the new spring wheat varieties of the Crop Quality Council and the winter wheats of the Hard Red Winter Wheat Quality Council after fire destroyed the pilot mill of the Kansas State University.

Report Reviewed

Mr. Ward of Pillsbury, who is in charge of process development and the Pillsbury pilot mill, reviewed his report and explained to the committee very thoroughly the method he has adapted for the necessary comparative relative evaluation. The milling properties of the new varieties were discussed and it was noted with satisfaction that due consideration has been given by the Crop Quality Council to the milling values.

The committee, after lengthy deliberation, decided to spend a major part of its May 21 meeting on this project and review at that time the proceedings and decisions made at the Feb. 10 meeting in Kansas City of the Hard Red Winter Wheat Quality Council. The committee members are expected at that time to define tentative standard methods to measure milling value and recommend that the same method be employed for the evaluation of the 1961 hard red spring and hard red winter wheat crops, regardless of whether the work is carried out at the Kansas State University's new pilot plant or again at the Pillsbury pilot plant.

The national conference has three speakers scheduled to discuss the various ramifications of milling value.

The instrumentation sub-committee of John Wingfield and David Mattson invited to the meeting Northwest representatives of the Instrument Society of America. Robert Cahill, Ramsey Engineering, St. Paul, and Howard Marston of Minneapolis-Honeywell, Minneapolis, explored ways of cooperation.

Particle Size Measurement

Professor Ken Whitby, University of Minnesota, reported on the status of flour particle size measurement ap-

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SOME HIGH PRAISE was forthcoming during the meeting of District 4, Association of Operative Millers, for the film, "Wheat—Food for the World," which was on the program. District and national AOM officers with the film, are, standing left to right: Frank Lindholm, newly elected national executive committeeman, Russell Miller-King Midas Mills, Hastings, Minn.; W. A. Howie, the J. K. Howie Co., Minneapolis, secretary-treasurer of District 4 for 25 years (now retiring); Bill Carter, the R. J. S. Carter Co., Minneapolis, newly appointed secretary-treasurer of District 4; Stuart Butler, Maple Leaf Milling Co., Ltd., Toronto, AOM president, and Alden A. Ackels, Bay State Milling Co., Winona, Minn., AOM vice president and general chairman for the 65th annual technical conference. Seated, left and right, are Jack Retzer, Russell Miller-King Midas, Superior, Wis., elected District 4 president, replacing George Tooker, Commander Larabee Milling Co., Minneapolis. The film, prepared by the Millers National Federation, was arranged for the program through the courtesy of Commander Larabee and the Allied Trades Committee. Not pictured was Ken Nordstrom, General Mills, Inc., new vice chairman of the district.

paratus and methods and reviewed current activities of the American Association of Cereal Chemists' particle size measurement committee.

A. W. Amundson of Buckbee Mears Co., St. Paul, showed the committee micro-mesh screens and sieving apparatus and slides of the manufacturing process. Micro-mesh is manufactured by an electroplating process rather than by weaving of wire cloth. It is more accurate and finer apertures are possible.

H. S. Gabbert of the mill operating efficiency committee reviewed his plans to moderate a half day panel of experts on mill maintenance. Out of five invited speakers the technical committee selected four to cover the following subjects: 1. The maintenance of a flour mill, 2. The maintenance system of another industry, 3. Electric maintenance, and 4. Administration, training and systems and procedures.

The sanitation committee named one speaker on the subject of housekeeping and sanitation. There will be ample opportunity for everyone to submit questions in writing to the panel of experts.

A variety of subjects and speakers were received by the committee in the field of mill modernization.

Gene Gehrig, The Quaker Oats Co. (retired), reported on the Jan. 24 meeting in New York of the National Fire Protection Assn., where representatives of the milling industry pressed for lower insurance rates on flour mills with pneumatic lifts.

H. A. Noll, Franklin Park, Ill., showed a model of his recently developed rubber feeder rolls for roller mills.

A. E. Swanson, the Day Co., Minneapolis, reviewed the future possible ways of evolution toward more compact dust filters.

THIS SERIOUS DISCUSSION finds two members of the program committee for the AOM technical conference in Minneapolis next May talking over their plans. They are, at left, Paul McSpadden, Commander Larabee Milling Co., and Arlin B. Ward, the Pillsbury Co. Other members of the committee are Ken Nordstrom, General Mills, Inc., and Robert D. Ellis, International Milling Co.

O. J. Zimmerman, SMICO Sales Co., Minneapolis; Abel Morros, Mexico City, and their four aides presented slides of Mexican-built flour mills and flour mill machinery which is being adapted currently for U.S. markets.

V. D. Frevert of Crippen Manufacturing Co., Alma, Mich., related the details of the Crippen grain polisher brush and electrostatic separator.

J. Childs and William Steuber of Rolfes Electronics, Corp., Boone, Iowa, exhibited a model of Rolfes Level-trol, a newly developed bin container level measuring device.

The technical committee in cooperation with the sanitation committee selected eleven topics to be presented at the 1961 national conference in a half-day panel of "What's New." «

THE DISTRICT 4 MEETING of the Association of Operative Millers at the Pick-Nicollet Hotel in Minneapolis provided opportunity for some conversation at the international level. At the left is Abel Morros, of the firm Morros S/A., Mexico, conferring with Ot Zimmerman, president of SMICO Sales, Inc., Minneapolis. Listening, right, is Felipe Salete, also of the Mexico City firm. The two companies recently completed an arrangement whereby SMICO Sales will market a complete line of flour milling machinery in the U.S. and abroad under the name of SMICO-Morros.

CLASSIFIED DEPARTMENT

Advertisements in this department are 20¢ per word; minimum charge, $3.00. (Count six words for signature.) Add 25¢ per insertion for forwarding of replies if keyed to office of publication. Situations Wanted advertisements will be accepted for 15¢ per word, $2.25 minimum. Add 25¢ per insertion for keyed replies. Display Want Ads $20 per inch per insertion. All Want Ads cash with order.

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MACHINERY FOR SALE

NEW PNEU-FLOW SYSTEM BY SPROUT, WALdron and Company. System moves dry powdered materials (feed ingredients, premixes, flour, chemicals, etc.) quickly and easily. Saves labor, speeds production. System for sale will move feed premixes, for example, at an estimated capacity of from 6,000 lb. to 8,000 lb. per hour with a maximum lift of 25 ft. and a maximum run of 20 ft. with two 90 degree elbows in the conveying line. System is complete and ready for installation. Equipment includes air compressor, power pump, piping and fittings, all necessary parts, engineering list, installation drawings, bulletin on blower, wiring diagrams, assembly of dust collector and assembly of Pneu-Flow system. Equipment is new and is still in original shipping crate. May be seen at 3477 North Hovey, Indianapolis 18, Ind. Specifide, Inc., P.O. Box 55263, Indianapolis, Ind.

HELP WANTED

ATTENTION FLOUR BROKERS

The Hubbard Milling Company, millers of quality flour for the past 82 years, have several desirable territories open. If interested, please contact us with full details.

SPRING WHEAT FLOURS - BLEND FLOURS
Shipment in Sacks or Bulk

HUBBARD MILLING COMPANY
MANKATO, MINNESOTA

Research Chemists

College degree in organic chemistry, biochemistry or food technology preferred. Will consider fundamental chemistry with some foods experience. Work involves research, prepared mixes and new products development.

Control Chemist

Prefer chemistry degree with some foods experience. Need young man with management potential and willingness to assume responsibility.

Minneapolis, Minn., location. Major flour miller. Salary open. Complete benefit program. Address Ad No. 6554, The Northwestern Miller, Minneapolis 40, Minn. All replies confidential.

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GRIST of GRINS

During a congressional campaign the Republican and Democratic candidates met at the same time in a town with only one large auditorium.

The sheriff, who had to sweep out the courthouse, told the candidates they'd have to have their meetings at the same time because he didn't intend to sweep twice in one day.

And it was up to this sheriff to introduce the opposing candidates. He arose and said, "I want to present to you a man who, above anyone, has the welfare of each and every one of you at heart. More than anyone I know, he is devoted to our great and glorious state. He understands, as no other man, the problems of our great nation. I know of no other who is so expert in foreign affairs, education, economics, taxation. . . ."

Then the sheriff turned to the candidates and asked: "Which of you polecats wants to talk first?"

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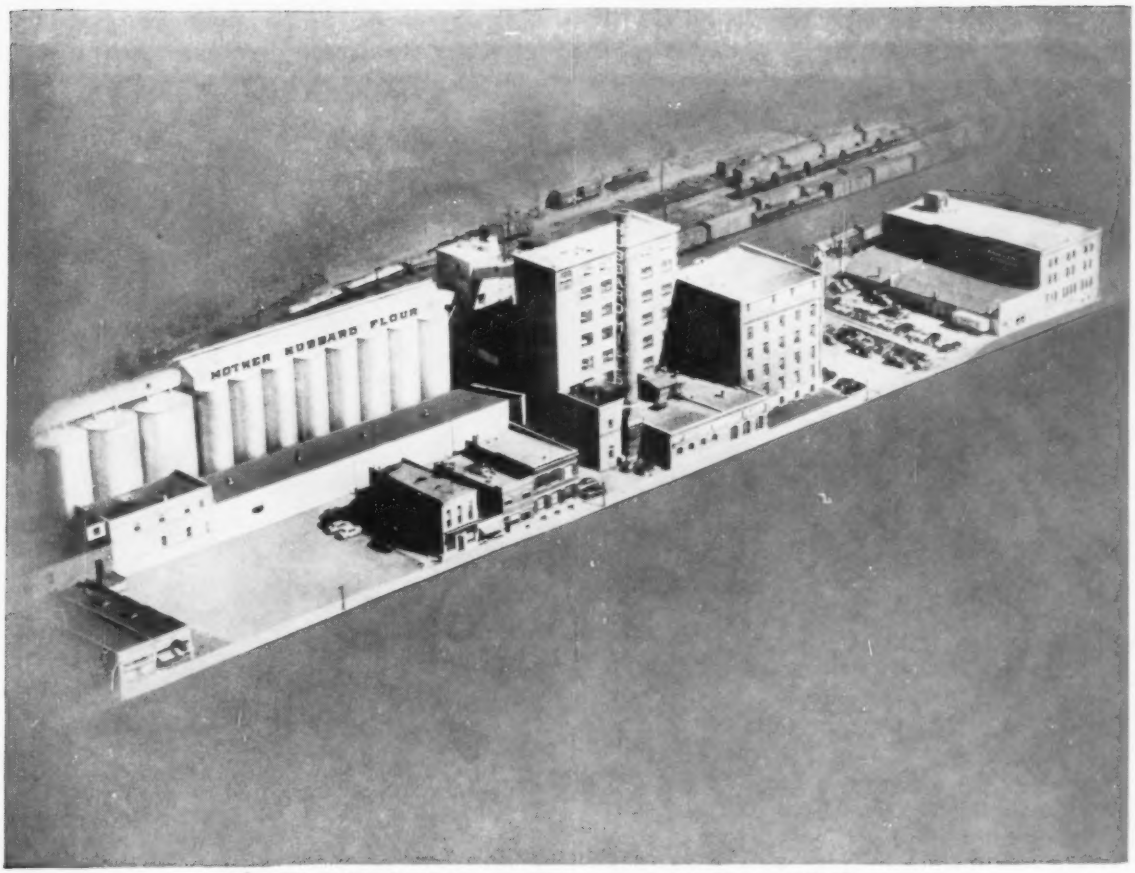
A noted explorer, visiting a remote Pacific island, was impressed with the dexterity of natives in their use of spears. One tribe's chief was especially skillful.

Watching this chief spear small objects at incredible distances, the explorer was possessed of an idea. Taking a half-dollar from his pocket, he set it up at a distance of 50 yards. The chief promptly speared the coin in its precise center.

"Incredible!" exclaimed the explorer. "Now let's try it with a quarter!" Again the chief hit his target squarely.

"This is wonderful! Now, I wonder if you could possibly hit a dime?" The old chief studied the small coin, then shook his head. "I don't believe I can do it," he admitted. "After all, I'm no longer a young man. But," he waved his hand toward a nearby hut, "maybe my brother would like to try."

He strode to the entrance of the hut, pulled back the curtain and shouted, "Brother, can you spear a dime?"



Hubbard Milling Co., Mankato, Minnesota 3000 sacks capacity—mill elevator storage, 500,000 bu.

Mill employee setting single control of Dyox machine for maturing flour.

HUBBARD MILLING CO. KEEPS CUPBOARDS FILLED WITH THE HELP OF

W&T Flour Treatment

Hubbard Milling Co. uses dependable Wallace and Tiernan processes and equipments to send a steady flow of fine flour products to its customers. This mill knows the benefits of doing business with a firm of single-line responsibility — with manufacture, sales, and service under one roof.

At Hubbard Milling the W&T Dyox® Process is used to generate and apply chlorine dioxide gas accurately and uniformly... matures the flour for best performance in bread baking.

Novadelox®, chosen for its bleaching efficiency, is fed through mill-proved NA Feeders for peak color removal and best color dress. Similar feeders apply "N-RICHMENT-A"® for the addition of vitamins and minerals.

Hubbard Milling Co. is only one of the many milling companies using W&T Flour treatment. If your mill is not one of these, investigate the advantages of Wallace & Tiernan's complete flour service.

NOVADEL FLOUR SERVICE DIVISION
WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
REPRESENTATIVES IN PRINCIPAL CITIES

N-115.64

Americans are healthier than they were 20 years ago!

And that wonderful truth is evident in the smiling faces of our youngsters. They are the shining proof of the zeal with which America's industrial, medical and nutritional leaders have worked to improve the health of our people.

20 years ago United States millers and bakers began a revolutionary new program to improve America's diet by the enrichment of white flour and bread. The physical and mental vigor of the American people is a tribute to this program.

General Mills is proud of the part its people played in this achievement. And as we celebrate this 20th anniversary of Enrichment, we hope that someday all the peoples of the world can benefit from such a program . . . one that has made Americans healthier than ever!

General Mills salutes the 20th anniversary of Enrichment

BAKERY SALES SERVICE
Minneapolis 26, Minnesota

General Mills

20 YEARS ENRICHMENT "The Quiet Miracle"

AIB